Acceptance Study for SciBooNE Charged-Current Coherent Pion Production Technical Note Rough Draft

Jonathan Asaadi*
1 and Zachary Williams $^{\dagger 1}$

¹Department of Physics, The University of Texas at Arlington

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Abstract

We showed that the SciBooNE guys tried to mess physics up by cutting out all of their CC-Coh Pion events from their data that was actually there! Duh. Do we need an abstract?

1 Introduction

The goal of this document is to provide a reference for the acceptance study performed for the SciBooNE charged current coherent pion $(CC - Coh\pi^{+/-})$ re-analysis as well as provide documentation to the code used in this study (in the event anything needs to be revisited in the future).

The code currently lives in this github repository labeled SciBooNE-MC and the corresponding ROOT files used in the simulation can be downloaded from here (insert dropbox/Google Drive Link here)

The paper is structured such that Section 2 outlines Monte Carlo samples used in this study, Section 3 describes the SciBooNE detector as it was simulated in this study, Section 4 describes the various event samples that were used to both validate and generate the acceptance studies for the $CC - Coh\pi^{+/-}$ sample. Section 5 gives a high level summary of the results including the event-reduction table as well as the CC-Coh- π acceptance results.

Sections ?? - ?? provide supporting plots which are used to generate the acceptance tables found in Section ??.

The appendix is left to explain how the code is run and the details of the scripts within.

1.1 Goal

The goal of the reanalysis is to examine the acceptance modeling for the SciBooNE results in the presence of modern neutrino generators and updated models in order to understand why SciBooNE did not observe Charged-Current Coherent Pion Production at low neutrino energy. The purpose of this acceptance study is to blah blah blah... (coming back to this later...)

2 Samples

Five different samples were used in this study, three samples for ν -mode and two samples in $\bar{\nu}$ -mode.¹ Table 1 summarizes these samples. Details on these samples can be found in Appendix

| | | summary of sa | mples |
|------------------|--------------|---------------|----------------------------|
| Mode | NEUT version | Pion-Model | Number of simulated events |
| $\overline{\nu}$ | 5.3.6 | Rein-Sehgal | 1,000,000 |
| ν | 5.3.6 | Berger-Sehgal | 1,000,000 |
| ν | X.X.X | Rein-Sehgal | 100,000 |
| $\bar{ u}$ | 5.3.6 | Rein-Sehgal | 1,000,000 |
| $\bar{\nu}$ | 5.3.6 | Berger-Sehgal | 1,000,000 |

Table 1: Summary of the samples used to build the acceptance model for this study.

3 Simulation

This section is intended to detail the nuances of this acceptance model, and to detail what assumptions are made in the acceptance modeling to result in accurate classifications of events as Charged-Current Coherent Pion Production.

3.1 The Detector

For the purposes of this acceptance study, the SciBooNE experiment is composed of two subdetectors. The first (and the more upstream) of the sub-detectors, is the Scintillator Bar Tracker (SciBar) which was originally conceived and constructed to function as the near detector for the K2K experiment [reference]. The second (and more downstream) of the sub-detectors, is the Muon Range Detector (MRD), which is the detector designed and constructed specifically for SciBooNE for measuring the momentum of muons produced from charged-current neutrino interactions up to 1.2~GeV/c by using the observed range of the trajectory of the muon. The coordinante system used throughout this study, and illustrated in Figure 3.1, puts the origin in the lower corner of the SciBar detector, has z along the beam direction, y opposite to gravity, and x to beam left.

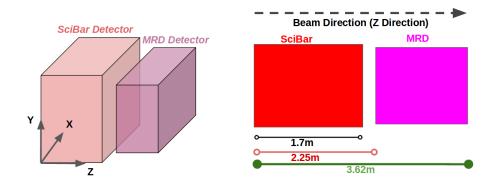


Figure 1: Representation of the SciBooNE detector and the coordinate frame we use in this study

¹All of these samples were generated by Callum Wilkinson (Thanks, Callum!)

3.1.1 The Scintillator Bar Tracker (SciBar)

The Scintillator Bar Tracker (SciBar) sub-detector is a scintillator detector which was used to identify neutrino interactions within SciBooNE. The dimensions of teh SciBar detector used in this simulation are 0 < x < 3.0 m, 0 < y < 3.0 m 0 < z < 1.7 m. This simulation models the scintillator materials as having a constant energy deposition per unit length (dE/dx) for both muons and pions of 2.04 MeV/cm based on previous SciBooNE analyses and mean values for typical particle momentum in the PDG.

3.1.2 The Muon Range Detector (MRD)

The Muon Range Detector (MRD), depicted in Figure 3.1.2 is located 0.55 m downstream of SciBar in the z-direction, and is a composition of two sets of thirteen alternating slabs of steel-scintillator layers, where the scintillator layers alternate between being horizontally oriented or vertically oriented, in the xy-plane. The steel layers have a z-direction thickness of 5.08 cm and the scintillator layers have a z-direction thickness of 0.6 cm. Combining all the layers of the different alternating materials results in 26 scintillator layers that "sandwich" twenty five steel layers inbetween and gives a total z-direction dimension of being 1.37m. The xy-plane is modeled as a square again (as was the case with SciBar, too) with dimensions in the x-direction and the y-direction of 2.6 m. The energy deposition per unit length (dE/dx) of a muon penetrating the scintillator layers is assumed to be a constant 2.04 MeV/cm while the energy deposition for the muon in the steel layers is assumed to be a greater value of 11.43 MeV/cm. Both these values are typical for muons at the energy range produced in SciBooNE and taken from the PDG

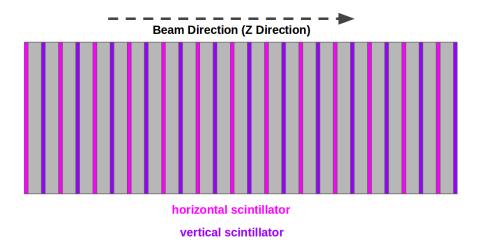


Figure 2: Depiction of the Muon Range Detector (MRB) which consists of alternating layers of horizontal scintillator (shown in pink) steel slabs (showin in grey) and vertical scintillator (shown in purple)

4 Event Selection

Two main samples are used in this study to generate an acceptance tables. The first is a charged current inclusive (CC-Inclusive) sample which requires a muon was created in the neutrino interaction and this muon intersects the MRD. This sample is described in Section 5.1.

The second sample is the charged current coherent pion $CC - Coh\pi^{+/-}$ sample which requires a muon and charged pion are created in the neutrino interaction exclusively (e.g. no other final state particles in the event). This sample is described in Section 5.2.

Both of these samples are selected using NEUT MC-truth flags which ensure we are treating pure samples which are classified by the neutrino generator as belonging to the appropriate sample.

Whether or not the event identified by our selection makes it into the final sample used in the acceptance study depends on the behavior of the muon with respect to the MRD. A muon which enters the MRD from a neutrino interaction will either come to stop in the MRD, exit out the back of the MRD (assuming it's momentum is great enough), or exit out the side of the MRD. In the next sections we explain this classification further.

4.1 Muon Stops within the MRD ("Stopped")

The requirement to classify a neutrino interaction as a "stopped" event requires the muon from the interaction to have reached the MRD, penetrated at least three layers of steel (giving activity in three layers of scintillator), and to then deposit all of its remaining energy prior to reaching a boundary of the MRD. An illustration of a $CC - Coh\pi^{+/-}$ event which would be classified as "stopped" is shown in Figure 4.1.

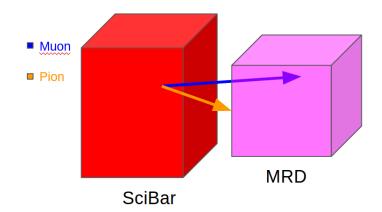


Figure 3: Depiction of an event that was classified as "Stopped."

These events allow for complete reconstruction of the muon's momentum based on the number of layers which the muon penetrated and the muons incident angle.

4.2 Muon exits out the back of the MRD ("Out-the-back")

The classification of a neutrino interaction as "out-the-back" requires that the muon from the interaction to have reached the MRD and to have had sufficient kinematics to have exited out the back face of the MRD without stopping. An illustration of such an event is given in Figure 4.2.

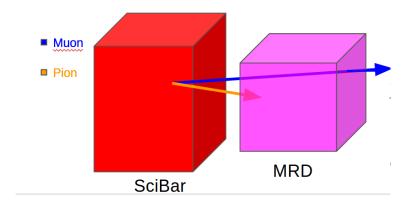


Figure 4: Depiction of an event that was classified as "out-the-back".

The exact momentum of muons which pass completely through the MRD could not be made in reconstruction, so these events were classified as having the minimum energy required to penetrate all the steel and scintillator layers of the MRD.

4.3 Muon exits out the side of the MRD ("Out-the-side")

The classification of a neutrino interaction as "out-the-side" requires that the muon from the interaction to have reached the MRD, penetrated at least three layers of steel, but to have then exited out the side of the active volume of the MRD (excluding the very back face). Events which are classified as "out-the-side" are excluded from this study because no accurate reconstruction of the muons momentum can be made when the muon exits out the side of the MRD. An illustration of such an excluded event which exits out the side of the MRD is given in Figure .

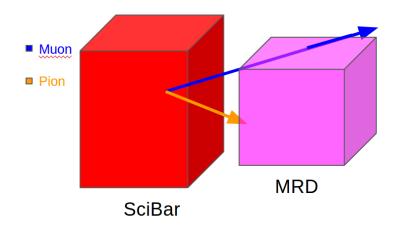


Figure 5: Depiction of an event that was classified as "Out-Side."

5 Results

The results of this acceptance study can be broken down into two different classification schemes of events. Those that met the conditions to qualify as a CC-Inclusive event, and those that met the

conditions of classification as Charged-Current Coherent Pion Production events. The plots in the two subsections below show our results.

5.1 Charged-Current Inclusive Events

Here we define the charged current inclusive sample (CC-Inclusive) which we use to validate our acceptance model against previous simulation studies which were done. Table 4 goes through the event selection criteria for selecting a sample of CC-Inclusive events from the neutrino mode (ν -mode) Monte Carlo.

| | v-mode CC-mclusive | Event Reduction | |
|--|-------------------------|---------------------------|-------------------------|
| Events Selection | NEUT v5.3.6 Rein-Sehgal | NEUT v5.3.6 Berger-Sehgal | NEUT vx.x.x Rein-Sehgal |
| Total Sample | 1,000,000 | 1,000,000 | 100,000 |
| CC-Inclusive Interaction | xxx,xxx | xxx,xxx | xxx,xxx |
| μ (μ + n-other particles in SciBar) | | | |
| Muon enters the MRD and | xxx,xxx | xxx,xxx | xxx,xxx |
| penetrates ≥ 3 layers of steel | | | |
| "Stopped"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-back"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-side"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| Good CC-Inclusive Events | xxx,xxx | xxx,xxx | xxx,xxx |

ν -mode CC-Inclusive Event Reduction

Table 2: Event reduction table for a sample of ν -mode CC-Inclusive evnets simulated in the Sci-BooNE geometry.

Figure 5.1 shows the momentum and angular distribution for the sample of ν -mode CC-Inclusive events passing all our requirements for all three models considered in this study (NEUT v5.3.6 Rein-Sehgal, NEUT v5.3.6 Berger-Sehgal, NEUT vx.x.x Rein-Sehgal). The distributions have been normalized to the same area and show no strong differences between them.



Figure 6: Muon Momentum (left) and Muon Angle (right) for ν -mode CC-Inclusive interactions for all three models included in this study. These samples kinematics are, unsurprisingly, very similar for the sample of CC-Inclusive

Figure 5.1 represents the one-dimensional efficiency for selecting ν -mode CC-Inclusive events for this study compared to results derived from Hirade's thesis (need proper reference) using the full SciBooNE Monte Carlo simulation. A few reference points are illustrated using dashed lines to guide the readers eye. A few perecent difference is seen, but overall agreement between the two simulations hold.

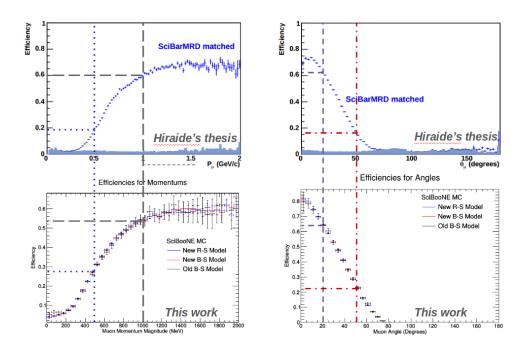


Figure 7: One-dimension efficiency plots for the ν -mode CC-Inclusive sample.

Figure 5.1 shows the two-dimensional efficiency for selecting ν -mode CC-Inclusive events for this study compared to results derived from Morgan's reference sample (need more words here about this...see email)

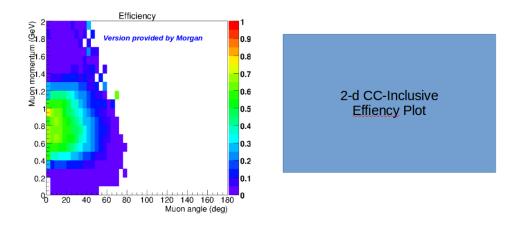


Figure 8: Two-dimensional efficiency plots for the ν -mode CC-Inclusive sample.

Similar to before, Table 3 goes through the event selection criteria for selecting a sample of CC-Inclusive events from the neutrino mode ($\bar{\nu}$ -mode) Monte Carlo.

Figure 5.1 shows the momentum and angular distribution for the sample of $\bar{\nu}$ -mode CC-Inclusive events passing all our requirements for all three models considered in this study (NEUT v5.3.6

$\bar{\nu}$ -mode CC-Inclusive Event Reduction

| Events Selection | NEUT v5.3.6 Rein-Sehgal | NEUT v5.3.6 Berger-Sehgal | NEUT vx.x.x Rein-Sehgal |
|--|-------------------------|---------------------------|-------------------------|
| Total Sample | 1,000,000 | 1,000,000 | 100,000 |
| CC-Inclusive Interaction | xxx,xxx | xxx,xxx | xxx,xxx |
| $\mu + \text{n-other particles in SciBar}$ | | | |
| Muon enters the MRD and | xxx,xxx | xxx,xxx | xxx,xxx |
| penetrates ≥ 3 layers of steel | | | |
| "Stopped"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-back"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-side"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| Good CC-Inclusive Events | xxx,xxx | xxx,xxx | xxx,xxx |

Table 3: Event reduction table for a sample of $\bar{\nu}$ -mode CC-Inclusive evnets simulated in the Sci-BooNE geometry.

Rein-Sehgal, NEUT v5.3.6 Berger-Sehgal, NEUT vx.x.x Rein-Sehgal). The distributions have been normalized to the same area and show no strong differences between them.



Figure 9: Muon Momentum (left) and Muon Angle (right) for $\bar{\nu}$ -mode CC-Inclusive interactions for all three models included in this study. These samples kinematics are, unsurprisingly, very similar for the sample of CC-Inclusive

Figure 5.1 represents the one-dimensional efficiency for selecting $\bar{\nu}$ -mode CC-Inclusive events for this study. No similar reference sample exists to be compared directly against, however we note that the shape and magnitude of the acceptance is nearly unchanged between $\bar{\nu}$ and ν -mode samples (as expected).

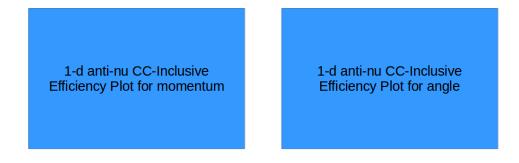


Figure 10: One-dimension efficiency plots for the $\bar{\nu}$ -mode CC-Inclusive sample.

5.2 Charged-Current Coherent Pion Production Events

ν -mode CC-Coherent Pion Event Reduction

| Events Selection | NEUT v5.3.6 Rein-Sehgal | NEUT v5.3.6 Berger-Sehgal | NEUT vx.x.x Rein-Sehgal |
|---|-------------------------|---------------------------|-------------------------|
| Total Sample | 1,000,000 | 1,000,000 | 100,000 |
| CC-Coherent Pion Interaction | xxx,xxx | xxx,xxx | xxx,xxx |
| $(\mu + \pi + \varnothing \text{ in SciBar})$ | | | |
| Both muon and pion are | xxx,xxx | xxx,xxx | xxx,xxx |
| forward going | | | |
| Muon enters the MRD and | xxx,xxx | xxx,xxx | xxx,xxx |
| penetrates ≥ 3 layers of steel | | | |
| "Stopped"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-back"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-side"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| Good Coherent Pion Events | xxx,xxx | xxx,xxx | xxx,xxx |

Table 4: Event reduction table for a sample of ν -mode Charged Current Coherent Pion events simulated in the SciBooNE geometry.

$\bar{\nu}$ -mode CC-Coherent Pion Event Reduction

| Events Selection | NEUT v5.3.6 Rein-Sehgal | NEUT v5.3.6 Berger-Sehgal | NEUT vx.x.x Rein-Sehgal |
|---|-------------------------|---------------------------|-------------------------|
| Total Sample | 1,000,000 | 1,000,000 | 100,000 |
| CC-Coherent Pion Interaction | xxx,xxx | xxx,xxx | xxx,xxx |
| $(\mu + \pi + \varnothing \text{ in SciBar})$ | | | |
| Both muon and pion are | xxx,xxx | xxx,xxx | xxx,xxx |
| forward going | | | |
| Muon enters the MRD and | xxx,xxx | xxx,xxx | xxx,xxx |
| penetrates ≥ 3 layers of steel | | | |
| "Stopped"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-back"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| "Out-the-side"-Events | xxx,xxx | xxx,xxx | xxx,xxx |
| Good Coherent Pion Events | xxx,xxx | xxx,xxx | xxx,xxx |

Table 5: Event reduction table for a sample of $\bar{\nu}$ -mode Charged Current Coherent Pion events simulated in the SciBooNE geometry.

(Again, you show the momentum and angle spectrum. You show the 1-d efficiencies and you have the 2-d efficiency plots AND A TABLE WHICH LISTS THEM (this is the biggest piece that is missing and I was expecting to see), here you also include the q2 and |t| distributions and their definitions.)

| | _ | _ | _ | _ | | | | _ | _ | _ | _ | _ | _ | _ | | | | | _ | _ | | | | | | | | | | _ | _ | | | _ | _ |
|---------------------|---------------|-------------|-----------|-----------|-------------|------------|-------------|-------------|------------|-----------|------------|----------|------------|------------|----------|---------|-------------|----------|------------|--------------|-------------|-------------|----------------|-------------|-------------|--------------|----------|----------------|--------------|---------------|----------|-----------|----------|------------|------------|
| | 1930.2000 | 0.823529 | 0.713615 | 2014190 | 0.5625 | STORY OF | 281932 | 033333 | | | | | | | | = 0 | | | | | | | | = 0 | | | | | | | | | | | |
| | 1900-1950 | 787877 | 623853 | 630252 | 3301655 | 0.379852 | 7 19 | - | 1.7 | | | | | _ | | | | | _ | | | | | | | | | | | _ | | | | | _ |
| | 830-1900 19 | 86111 0. | 0 00 | 638686 0. | 589507 | 200000 | _ | - | 8 | - | = 0 | | | | | = 0 | 0 0 | | _ | | | 0 1 | 0 1 | = 0 | 0.0 | 0 00 | | | | | | | 00 | 0.00 | |
| | E | B B | | _ | | | | | | | = 0 | - | | | | = 0 | = = | | | | | - | - | = 0 | = = | | | | | | | | | | |
| | 1800-1850 | 38-88-8 | 0.684983 | _ | | | _ | 0.071-286 | 87 | | = 0 | | | | | = 0 | | | | | | - | - | = 0 | | | | | | | | | | | |
| | 1730-1800 | 0.77.93 | 0.70068 | 0.598291 | 0.58270 | 1/283/1 | 13.675 | 0.25 | | 8.25 | = 0 | | | _ | | = 0 | | | | В | _ | - | - | = 0 | | | | | В | _ | В | _ | _ | | В |
| | 170-170 | 551260 | 71177 | 0.634361 | 0.532651 | 197470 | 127277 | 17 | 29999F0 | | = 0 | | | В | | = 0 | | | | | | | | = 0 | | | | В | | В | | | | | |
| | 630-1700 | 921569 | 2002 | 8128-9 | 546547 | 200000 | 32857 | 238056 | 11872 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1600 1650 1 | 81 | 314835 | 8258191 | 281633 | 0.002674 | 37349 | 127773 | _ | 0 | = 0 | | | _ | | = 0 | | | _ | _ | _ | | | = 0 | | | | | | _ | _ | _ | | - | |
| | 530-1600 10 | 3355B 0.8 | _ | 9 0 0 0 0 | 260 | 91 | 2653 | - | - | - | = 0 | - | | | - | = 0 | | | - | | | - | - | = 0 | | | | | | | | | - | 0.00 | |
| | E | 000 | 0 | 48 0.66 | 4 856 | 1000 | 0 0 | | 0.09 | 9 0 | = 0 | - | | | - | = 0 | | | | = | | = 1 | = 1 | = 0 | | | | | = | | = | | | | _ |
| | 1300-1350 | 0.783333 | - | 0.657848 | 9999 | 1100 | 23418 | _ | 9.16 | = | | | | | | = 0 | | | | | | | | = 0 | | | | | | | | | - | | в |
| | 1450-15E | 0.779412 | 0.716946 | 0.635036 | 0.585284 | 0.254015 | 1335191 | 0.25 | 0.3(803 | 0.076923 | 1. | | | | | = 0 | | | | | | | | = 0 | | | В | В | | | | | | | |
| ਲ੍ਹ | 1:00:1:50 | 986220 | 0.72093 | 0.680731 | 928820 | 1000000 | 202120 | 0.251194 | 1105911 | 11 THE 12 | = 0 | | | | | = 0 | | | | | | | | = 0 | | | | | | | | | | | |
| aug | 1330-1400 | 8458 | 23.683 | 561-465 | 166839 | 200000 | 31715 | 182432 | 147039 | 8181 | | | | | | | | | | | | | | | | | | | | | | | | | |
| kein-Senga | 9.1350 1. | 811321 0. | | _ | 200138 | 0.00000 | 0 0 | 282609 0 | _ | 1919:97 | = 0 | | В | _ | 0 | = 0 | 0 0 | | | | | | | = 0 | 0 0 | | | | В | | | | | 0.00 | |
| eln | 4300 130 | SI2198 0.81 | 298 | 319 0.67 | 524 82 | 200 | 2 | 33333 0.28 | _ | - | 200 075 | 2 | | | - | = 0 | | | - | 0 | - | - | - | = 0 | | | | | | | 0 | - | - | | 0 |
| 7 | 58 1230 | 0.0 | 100 | 1891 | 999 8 | 800 | 1070 | | _ | 2 0.13636 | | | | | | = 0 | | | | | | - | - | = 0 | | | | | | | | | _ | | |
| \geq | 1 1200-1250 | 0.897592 | _ | 0.708895 | | 0.001865 | - | | | 0.182927 | | 1 | | | | = 0 | | | | | | | | = 0 | | | | | | | | | - | | |
| <u>-</u> | 1130-1288 | 217287.0 | 0.713326 | 1698891 | 0.627978 | 0.46200 | 1111920 | 0.316279 | 0.191235 | 0.15534 | 17/05/07 | | | _ | | = 0 | | | | _ | | | | = 0 | | | | | | _ | _ | | | | _ |
| New IN | 1100-1150 | 0.88785 | 10:546401 | 786769.0 | 652881 | 0.001020 | 6232 | 352837 | 77-2-47 | 798912.0 | 145461 | | | | | | | | | | | | | | | | | | | | | | | | |
| IOL [| 30-1100 | 121228 | 791633 | 713163 | 622.723 | 20030 | 9229 | 335748 | 2882 | _ | 1,0235 | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | 1000 1050 10 | 83-632 0 | | 314842 B. | 89HH98 | 0,000 | 82253 | 18821 | 26-297 | 144772 | 9119 | 9 | 136364 0 | _ | В. | = 0 | 0 0 | | | | | 0 1 | 0 1 | = 0 | 0.0 | 0.00 | | | | _ | | | 0.0 | 0.00 | |
| a E | $\overline{}$ | - | ~ | _ | 656648 0.62 | 090 | 893 | 308 | _ | _ | 12-514 0.0 | | - | _ | | = 0 | | | | - | | = 1 | = 1 | = 0 | | | | | _ | | = | | _ | | - |
| ustogram | 0001000 | H 0819549 | | - | 10,656 | 2000 | 1000 | 5 0362 | 7 028-258 | - | _ | | _ | | | = 0 | = = | | | | | - | - | = 0 | = = | | | | | | | | - | | |
| st | 908.93 | 08750 | 0.7630 | B.71337 | 1873 | 92/30 | 2816870 | 03715 | 0.2936 | _ | 7910110 | - | 6 002-890 | | | = 0 | = = | | | - | | - | - | = 0 | = = | | | | - | | - | | - | | _ |
| Ξ | 850.900 | 1198620 | 0.784038 | 0.71437 | 912-90 | 120894 | 0.455387 | 0378892 | 0290735 | 0239492 | 100000 | 0.083721 | 0.0641026 | 1872 | | = 0 | | | | | | - | = : | = 0 | | | | | | | | | | | _ |
| $\frac{1}{2}$ | 800-850 | 8/2962/0 | 7.007 | 0.718657 | 961-199 | 0.5,012.00 | 46.472 | 0.404237 | 0.312566 | 0.232889 | 13507 | 1024184 | 0.0347222 | 0.0131579 | | = 0 | | | | | | | | = 0 | | | | | | | | | | | |
| ior | 250 800 | 28 | 577.6 | 713192 | 6754 | 5,522 | 485.2 | 416728 | 324022 | 238347 | 2693 | 064045 | 0.44585 | 0121212 | | | | | | | | | | | | | | | | | | | | | |
|) | 102 | 3438 | 9690 | 221 | - | 161255 | 151254 | AZIBIB 0 | 150 | 22.00 | 9880 | 118-5225 | 0.724638 0 | 0234114 0 | 00546541 | = 0 | | | _ | _ | _ | | | = 0 | | | | | | _ | _ | _ | | | _ |
| rple | 30 | 1456 0.77 | 113 | 131 | 102 | 190 190 | 25 | 502 0.42 | 42802 0.33 | 592 0.27 | 171677 013 | - | _ | = | 88 | = 0 | | | | - | | - | - | = 0 | | | | | - | | - | | _ | | - |
| Fa | 658.7 | 5 0845 | 92.0 | 122 | 1690 9 | 2000 | 2 12 | 0.410 | 2 | 0.269 | 50 | 3 2 | _ | 0.020135 | | = 0 | | | | | | - | - | = 0 | | | В | | | | | | - | | |
| O | 099-009 | 84489 | 0.78433 | 0.7373 | 0.68121 | 0.52396 | 5850 | 7.0 | 0.33196 | _ | 2712217 | - | _ | = | | = 0 | = = | | | | | | | = 0 | = = | | в | В | | | | | | | |
| ple | 550 000 | 0.828829 | 0.787402 | 0.742788 | 0.78245 | 0.519398 | 1,48985 | 0.399772 | 0.3142 | 0.2-8649 | 0.121.60 | | | 0.0121873 | | = 0 | | | _ | _ | | | | = 0 | | | | | | _ | _ | | | | _ |
| Iar | 5m-350 | 0.816092 | 7.0547 | 0.73062 | 299999 | 0.500321 | 0.44563 | 0.3527 | 785785.0 | 0.220634 | 0.100000 | 9824250 | 18090270 | 0.00-41686 | | | | | | | | | | | | | | | | | | | | | |
| | 150-300 | 0.0917 | 21039 | .6363 | 2,007 | 202468 | 37459 | 335716 | 2-8335 | 200127 | 20191 | 05781 | 91800 | 0022571 | | | | | İ | İ | İ | | | | | _ | _ | Ī | İ | Ť | İ | İ | | | _ |
| | Г | 10.10 | - | _ | | | | | _ | | = 0 | - | 10 | 30 | | = 0 | | | | 0 | | - | - | = 0 | | | | | 0 | | 0 | | 0.0 | | 0 |
| | 0 400-450 | 0.553840 | | g 0524072 | 0.498253 | 22 0.04202 | 132288 | 74 0.272658 | 94 0.22549 | _ | 20123702 | | | _ | | = 0 | | | | | | - | - | = 0 | | | | | | | | | - | | |
| | 320-400 | 0.45 | - | 0.46010 | 9.4 | 0.00000 | 0.26046 | 0.22897 | 917519 | | 0.00000 | | | | | = 0 | | | | | | = 1 | - | = 0 | | | | | | | | | | | |
| | 310.350 | 202120 | 0334436 | 0.389937 | 133123 | 0.284/NS | 0.215533 | 0.1678.25 | _ | _ | 19303327 | 0.00000 | | _ | | = 0 | | | | | | | | = 0 | | | | | В | _ | | | | | |
| | 250-310 | 780820 | 131 | 0.2-22902 | 0.220374 | 0.140200 | 0.138368 | 0.1043-0 | 0.0617186 | 0.0461908 | 0.0115123 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 200 220 | 1259239 | 115(848) | 209-910 | 13-56 | 0.020614 | 0.047740 | 0.0376749 | 185547 | 00241935 | | | _ | Ī | | | | _ | _ | | İ | | | | | _ | _ | | | Ī | | İ | | | _ |
| | L | - | 77 | _ | _ | | J. 10618357 | | 8 | 2 | = 0 | - | | _ | | = 0 | | | | | | - | - | = 0 | | | | | | _ | | | - | 0 0 | |
| | 31 130 20 | 0.09375 | 0.0280374 | 0.0696203 | 683 | 1997 | 0.00 | | | | = 0 | | | | | = 0 | | | | | | - | - | = 0 | | | | | | | | | - | | |
| | 188 188-139 | | | | - | = 0 | | | - | - | = 0 | | | _ | - | = 0 | | | | | _ | - | - | = 0 | | | | | | _ | | _ | | | |
| | eV/c 50-100 | 0.0 | | | | = 0 | | | | - | = 0 | - | | | | = 0 | | | | | | - | - | = 0 | | | | | | | | | - | | 0 |
| | S 0-30 MeV/c | | | 0 | | = 0 | | | | _ | = 0 | | | | | = 0 | | | | | 0 2 | - I | - I | = 0 | | | - | - | 9 2 | - | 9 2 | 0 2 | | 0 00 | 0 1 |
| | New NM R-S | 45 Deg | 35 Day | 3-18 Dag | 18-22.5 Dry | 247 Day | 136 Day | 40.5 Day | 7-45 Day | 40.5 Day | 201 102 | 163 Day | 67.5 Day | 5-72 Day | Hand SH | Non neg | 855 att Dry | 94.5 Day | 945-99 Deg | 99 103 5 Day | IB 5-1B Dog | IB 1125 Drg | 112 5 4 17 Deg | 11/4215 Dig | 26 1305 Dev | 1315-135 Day | 1395 Dry | (3) 5-1-44 Deg | 144-1485 Drg | 1-8 5-153 Drg | 4575 Drg | 5.162 Drg | 1665 Deg | 17 175 Day | 5-181 Dry. |
| | á | 4.7 | 3 | 122 | # | N E | 1 2 | ģ | 9 | 9 | ÷ 5 | 95 | ĕ | 57 | re i | é | 6 00 | 8 | 36 | 99 | 103 | 9 | 2 ! | 7.5 | 13. | [2 | 12 | 8 | 141 | 2 | 9 | 12 | 20 5 | 15 | 13 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|-----------------|----------------------|-------------|------------|------------|-------------|-----------------------|-------------|-------------|-------------|----------------|------------|--------------|---------------|-------------|-------------|------------|-------------|------------|--------------|--------------|---------------|---------------|--------------|--------------|---------------|--------------|---------------|--------------|---------------|---------------|-------------|-------------|-------------------------------|
| | 1950-2000 | 0.204521 | 0.083030 | D.00747 | 0.4545 | 0.306835 | 0.137931 | 0.101010 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1900-1920 | 201008 | 745763 | 0.407596 | 0.451538 | 0.285714 | 0.258065 | *17000 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1820-1900 | 70.872 | 10000 | _ | | 929 | 1.55 | | _ | _ | _ | _ | _ | | | | _ | _ | _ | _ | _ | _ | | | | _ | _ | _ | _ | | | | _ | |
| | 1800.1850 1 | 0.0 | 0 2000 | | ÷ | | 0.108108 | | | _ | _ | | | 0 1 | 0 0 | | | | _ | | _ | | 0 0 | | | | - | _ | _ | | | | | |
| | 70.1800 18 | 770053 0.7 | 0.0 | - | - | - | 0.181818 | | - | _ | _ | | | - | 0 0 | | | | | | | | 0.0 | | - | _ | | _ | | - | | - | | |
| | 2012/01/12 | 0 0 | 700381 0.68 | | - | | | | - | _ | - | | | - | | | | | | | | | | | | - | - | _ | | - | | | | |
| | ш | 0 0 | - | | - | - | 73 0.34574 0.34574 | _ | | _ | - | | | - | = 0 | | - | | | | - | | | | | - | - | _ | | | | | | |
| | 020 1020 1200 | | 31 R747423 | - | - | - | 42 0.245753 | - | - | - | - | = | = | | | - | - | - | - | - | - | = | | - | - | - | - | - | - | | | - | - | |
| | 201 160 162 | - | E 0.664231 | _ | - | _ | 13 0,308 G.12 | - | _ | _ | - | | | | | | | | | | - | | | | - | - | - | _ | | - | | | | |
| | 30 1550 16m | - | 0.71783 | - | - | _ | 0.293103 | _ | _ | _ | - | | | | | | | | | | - | | | | | _ | - | _ | | - | | | | |
| | 1500 1530 | | 0.7082-0 | - | _ | - | 0.277372 | _ | _ | | | | | - | | | | | | | | | | | | | | | | | | | | |
| | 1.56 150 | 0.823397 | 0.7589 | 0.683 | 0.339335 | 0.403145 | 0.30333 | | _ | _ | _ | | | - | | | | | | | _ | | | | | _ | | _ | | _ | | | _ | |
| gal | 1:00:1420 | 3.55 | 0.753835 | 0.209419 | 0.409093 | 0.451791 | 0.381395 | 0.22222 | 0.136364 | _ | 2.0 | | | - | = 0 | | | | | | _ | | | | | _ | _ | _ | | | | | | |
| Berger-Sehgal | 1320-1400 | 0.202034 | 0.728296 | 0.612863 | 0.309404 | 0.453169 | 0.3354 | 0.231884 | 799991.0 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>1</u> -19 | 1300-1320 | 0.783133 | 0.708861 | 0.207805 | 0.729101 | 0.431408 | 0.389305 | 0.197368 | 0.0832323 | _ | | _ | _ | _ | | | | | | _ | | _ | | | | _ | _ | _ | _ | | | | _ | |
| Tge | Н | 7302 | 731769 | 270756 | 524138 | 929.22 | 465963 | 180-64 | 0.0388235 | 1000000 | IIIII | | | | | | | | | | | | | | | | | | | | | | | |
| -Be | 1201-1250 1 | 184875 0 | 73057 | | 535057 | - | 10000 | | - | 0.0759231 0 | | | | - | | | - | _ | | _ | | | 0.0 | | | _ | _ | _ | _ | | | | - | |
| | 1120-1200 12 | 1820281 | 1717318 0. | 162074 0 | = | 2 1 | 1357764 00 | | TIESSED III | _ | 0.0909091 0 | 0 | 0 | - | | - | - | - | | | - | 0 | 0.0 | | - | _ | _ | _ | | - | | | _ | |
| | 1130 | | 733735 0.7 | _ | ÷ | _ | 1437118 0.3 | | _ | _ | 0.0344828 0.0 | | | - | | | | | | | | | 0 0 | - | - | _ | - | _ | | - | | - | 0 | |
| New | 1020 HO HO 1130 | T. | | | = | _ | | - | _ | _ | 0.0851064 0.03 | | 0 200 | - | | | - | - | | | - | | | - | - | - | - | _ | | - | - | - | 0 | |
| or 1 | Н | - | _ | - | ÷ | _ | 0.4176 | | _ | _ | | | 286 (11666) | - | | | - | - | | | - | | | - | | - | - | - | | - | - | | | |
| Ŧ | E01-0001 0 | 2000000 | 14 0,756738 | 1 2 | 2 | - | 0.42383 | _ | 1236700 | ÷ | _ | | 67 0.0714286 | - | = 0 | | | | | - | | - | 0 0 | | | | | | - | | | | | |
| .au | 920 1000 | 0 0 | 8 0.70384 | | o' | - | 0.451835 | | ÷ | ÷ | 3 0.108844 | _ | 73 0.0-0.057 | - | | | | | | | | | | | - | | | _ | | - | | | | |
| listogram | 2000 | - | 0.756598 | _ | Ť | - | O TOTAL DE | | _ | Ť | _ | | B 0.0227273 | - | | | | | | | | 0 | | | | | | | | | | | | |
| list | 820-500 | 0.735448 | 0.773.006 | 0.661634 | 0.581746 | 0.521009 | 0.43864 | 0,3(5,906 | Ť | Ť | _ | | _ | 0.03135 | | | | | | | | | | | | _ | _ | _ | | | | | | |
| H | 810.870 | 0.858333 | 0.75235 | - | 0.60-228 | 0.5-48275 | 047349 | 0.323815 | R235971 | 0.161453 | | | 0.0162162 | - | | | | | | | _ | | | | | _ | _ | _ | | | | | | |
| $\overline{2}$ | 750 800 | 0.833333 | 0.780287 | 0.661647 | 0.622306 | 0.53257 | 0.454205 | 0.331052 | 0.255.223 | 0.197558 | 0.118211 | 0.0845538 | 0.0-26136 | | 0.0123457 | | | | | | | | | | | _ | | _ | _ | | | | | |
| for | 700 750 | 0.843373 | 0.782746 | 0.089404 | 0.637363 | 0.351891 | 0.479226 | 0.330302 | 0.258868 | 0.3045005 | 0.125182 | 0.0060020 | 0.0363636 | 0.0120482 | 0.006-2030 | | | | | | | | | | | | | | | | | | | |
| $_{\rm le}$ | 0.02 0.09 | .854865 | 704269 | 677215 | 01242 | 274788 | 0.402452 | 345987 | 359272 | 1.19-4IG | 0.135533 | 0.0003031 | 0.039056 | 0.0166667 | .m280899 | | | | | | | | | | | | | | | | | | | |
| Tak | 9 029 000 | - | 1801724 0. | - | _ | | 0.488325 0. | | Ť | ÷ | | | | 0.0195072 | 0 0 | | | | | | _ | | 0 0 | | | _ | _ | _ | _ | | | | | |
| :- | 220 500 00 | - | 78354 0.8 | _ | ÷ | _ | 595 | | _ | _ | | | | 0.0114213 0.0 | | | - | - | _ | 0 | _ | 0 | - | | | - | _ | _ | | - | | | | |
| ble | П | 0 0 | 78189 0.7 | 6 6 | o' | 0 1 | 0.486444 0.4 | | _ | _ | <u> </u> | - | = | 0.00.50.0077 | | | - | - | | | - | 0 | 0 0 | | - | _ | - | _ | | | | - | | 0 0 |
| lat | 500.530 | - | | | | | | | | _ | T | _ | - | - | = 0 | | | | | | | | | | - | | | _ | | | | - | | |
| L' | 450-300 | 172817.11 | 0.701245 | 0.582547 | 1,521,71 | 0.405-0 | 138178 | 1127246 | Ť | Ť | - | _ | Ξ. | 0.000740456 | | | | | | | - | | | | | - | | _ | | | | | | |
| | 09:00: | 0.615385 | 0.5725 | 0.517013 | 0.447548 | 0.395.361 | 0.33373 | 0.22483 | 781.81.0 | _ | _ | Ξ. | 0.007-5573 | | | | | | | | _ | | | | | _ | | _ | _ | | | | | |
| | 320-400 | 0.494540 | 0.463343 | 0,415013 | 0.381265 | 0312166 | 0283494 | 0.192308 | 0.141328 | 0.0928814 | 0.05522683 | 0.0128637 | | | | | | | | | | | | | | | | | | | | | | |
| | 300.350 | 20022 | 262963 | 318462 | 221872 | 25328 | 17827 | 129657 | 28201-001 | 0.0531873 | 0.0199623 | 3827-12000 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | _ | - | e e | | Ť | _ | 1000-55304 0.0 | 0 | | - | | | 0 | 0 | _ | | _ | | 0.0 | | | | _ | _ | | - | | | | 0.0 |
| | 250.30 | - | 0 0.00020 | _ | Ť | _ | 17 01-222 | | _ | 1011 | 000 | = | = | | | - | - | - | - | - | - | = | | - | - | - | - | - | - | | | - | - | |
| | 200.250 | 0.15785 | 0135716 | - | _ | _ | 71 0.0815217 | 0.0139147 | 701-1221010 | _ | | | | - 1 | | | | | | | | | | | | _ | | _ | | - | | | | |
| | 156.200 | 0.0625 | 0.03875 | 0.030004 | 0.0254025 | 0.00485618 | 0.00754717 | | | _ | _ | | | - 1 | | | | | | _ | | | | | | _ | _ | _ | _ | | | | | |
| | 001100 | | | | | | | | | _ | - | | | | | | - | | | | | | | | | _ | _ | _ | | - | | | | |
| | We some | | | | | - | | | | _ | - | | | - 1 | | | - | - | | | | | | | - | - | - | _ | | - | - | | | 0 0 |
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| | New NACES. | 0.45 Day 4.50 Day | 9-13.5 Deg | 8 22.5 Day | 225-27 Deg | 77-31.5 Day | 31.5-36 Dbg | 40.5 45 Day | 5-0.5 Drg | 935-54 Drg | 24.08.5 Dag | 585.63 Dhg | 63 67.5 Day | 250 57 Day | 72 (0.0 Lbg | 81.85.5 Dec | 855 90 Day | 90.94.5 Day | 945.99 Drg | 99 103.5 Deg | IG.5-108 Deg | 108-112.5 Day | 12.5-11.7 Day | 21 5 126 Day | 35-130.5 Day | 130,5-135 Day | 35-130.5 Deg | 120,5-144 Day | 44.148.5 Day | 148.5-153 Day | 107 5 162 Day | 2-105.5 Deg | 6.5-171 Day | 17 17 5 5 Day 17 5 180 Day |
| | Ľ | i 4 | 6 5 | . = | ěš. | er i | rei è | 6 F | ¥ | 7 | iś | 5 | ė. | e i | S F | - 50 | 96 | 6 | ń | 6 | ã | = | | | - 4 | = | ä | = | - | - 1 | | . = | = | - = |

| | E | | _ | _ | _ | _ | | _ | _ | _ | _ | _ | _ | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | | _ |
|-------------------------------------|--|----------------------------------|----------|--|------------|----------|--------------------------|-----------|-----------|----------|-----------|---------|--------|--------------|--------|----------|--------|---------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------|--------------------------------|---------|
| | 1950-2000 | 28 E | 365217 | 22.52 | 17 | 17 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | _ | | | _ | | | _ | | | - | - | 5 6 | - | _ | - | 0.00 | - | - | | | В | | 0.00 | - | - | 5 6 | - |
| | 1900-1950 | 1 0.533333 0.77778 | 10 | 1 4 | 2 | 99990 | | | | | | | | | | | | | | | | | | | | | | | |
| | 1850-1900 | 08 0882353 0842105 | | | . 12 | | | | | | | | | | | | | | | | | | | | | | | | |
| | ⊢ | | | 25 | | _ | = - | - | | - | | - | - | = = | | | - | | В | - | | - | в | - | | - | - | = = | |
| | 1800-1850 | 0.857143 | 0.625 | 0.47619 | 1272 | 999910 | | | | | | | | | | | | | В | | | | В | | | | | | |
| | 730-1880 | 823177 823177 826187 | _ | 647159 | _ | _ | | | _ | | | | | | | _ | | | | | | | | | | | | | |
| | ㅁ | 0.866 | E | 250 | 8333 | 8.222 | | | | | | | | = = | | | | | | | | | | | | | | = = | |
| | 1788-1758 | 652174 | oe | 17 25 | | 100 | ·7 | | | | | | | | | | | | | | | | | | | | | | |
| | ⊢ | _ | _ | | | 2 | 7 | - | | - | | - | - | = = | | | - | | В | - | - | - | В | - | | - | | = = | |
| | 1630-1700 | 1 0.823529 0.638298 | 0.6362 | 4736 | 1,4545 | 7 | 282 | | | | | | | == | | | | | | | | | | | | | | == | |
| | 1630-1630 | 2999 | 22.45 | 8 7 | 4615 | 294 | 2 2 | | _ | | | | | | | _ | | | | | | | | | | | | | |
| | ⊢ | | 19 0 | 9 7 | 89 | 13 | 9 17 | | | - | | | - | = = | | | - | | В | - | | | в | | | - | | = = | |
| | 350-1600 | 8 51 | 0.653846 | 20 10 10 10 10 10 10 10 10 10 10 10 10 10 | - 7 | 1333333 | | | | | | | | | | | | | | | | | | | | | | | |
| | ㄸ | | _ | _ | _ | _ | | | | | | | | | | _ | | - | _ | - | | | _ | | - | | - | | |
| | 1500-1550 | 0.309091 | 0.386957 | 0.368182 | 0.380 | 0.312 | 0.33333 | | | | | | | = = | | | | | В | | | | В | | | | | = = | |
| | 1458-1500 | 0.833333 0.833333 0.753556 | 9962 | 0.708333 0.377638 | 0347826 | 2999920 | 29999 | | | | | | | | | | | | | | | | | | | | | | |
| | 5 | | _ | | | | | | | - | | - | - | = = | | | - | | В | - | | - | в | - | | - | _ | = = | |
| [g | 1400-1450 | 1 0.875 0.660377 | 890 | 0.625 | 0.44444 | 7 | 0.117847 | 033333 | | | | | | | | | | | В | | | | В | | | | | | |
| ηğ | 1400 | | _ | 4373 | | | | | | | | | | | | _ | | | | | | | | | | | _ | | _ |
| 2D Histogram for Old NM-Rein-Sehgal | 1108-1158 1158-128 1208-128 1231-138 1388-1358 1358-1488 | 0.833333 0.825 0.706897 | | | | | n 15 | | | | | | | = = | | | | | | | | | | | | | | = = | |
| 1 | IB-135 | 50 578 F | 670588 | 578947 | 490566 | 29945 | 133 | 122 | | | | | | | | | | | | | | | | | | | | | |
| ei. | 300 1 | = 6 | | | ls | | | | | 8 | | | - | = = | | | | 0 0 | В | - | | | В | 00 | 0 0 | | | = = | - |
| Ä | 1231.1 | 111198 0 111198 0 | | | 0.517857 | | 0.380932 | | | 9333 | | | | | | | | | | | | | | | | | | | |
| \leq | 8-1230 | 0.75 0.74859 0.74045 | 11538 | 5887 | 100 | 436364 | 35714 | 83333 | | | | | | | | | | | | | | | | | | | | | |
| Ξ | 120 | 255 | _ | | | <u> </u> | | _ | | - | | - | - | | | | - | | | - | | - | | | | - | - | = = | |
| $\overline{}$ | 158.12 | 0.75 0.8 0.88354 | 18867 | 0.635393 0.741398 | 1.453.116 | 376813 | 0.272727 | = | _ | | | | _ | == | _ | _ | | | _ | _ | | _ | _ | | | | | | |
| \preceq | 1150 | 1 0.815789 0.776316 | _ | _ | | | | | 22 | | | | | | | _ | | | _ | | | | _ | | | | _ | | _ |
| \cdot | 1100 | 1 0.815 | _ | | | | 130787 | | | | | | | | | | | | В | - | | | в | | | - | | = = | |
| Ö, | 1959-1100 | 0.777778 0.807092 0.851064 | 68888 | 341176 | E | 66599 | 0397486 | 1021 | _ | | | | | | | | | | | | | | | | | | | | |
| J. f | 10 | _ | _ | | | | | - 2 | 282 | - | | | - | = = | | | - | 0 0 | | - | | | - | - | 0 0 | | | = = | |
| я | 1000-1650 | 0.8 0.860667 0.747253 | 0.7106 | 0.639535 | 0531034 | 0.471588 | 0317308 | 878 | 99714 | 3. | | | | | | | | | В | | | | | | | | | | |
| H | 1000 | 810811 S10811 | 22039 | 16565 | 46359 | 79991 | 7 0.3808.55 0.2555.38 | 85714 | 23032 | 15 E | 9 | | | | | | | | | | | | | | | | | | |
| Õ | 95 | | | | | 3 | 5 2 | 22 | 19 | 200 | - | - | - | = = | | | - | | В | - | - | - | В | - | | - | | = = | |
| ist | 900-900 | 1 0.792453 0.746988 | 1922 | 0.6519 | 0.513228 | 42 | 0.407407 | 83422 | 0.235364 | | | | | = = | | | | | В | | | | | | | | | == | |
| Ξ | 850 9EB | 877777.0 27828.09 27828.09 | 53425 | 73267 | 524887 | 74654 | 394537 | 259259 | 122807 | 131579 | 799974 | | | | | | | | | | | | | | | | | | |
| | 82 | 16 18 | 99 | 919 | 592437 8.5 | | | | | | 2 0 | = | - | = = | - | _ | _ | | _ | - | == | - | в | | | - | | = = | |
| $\mathcal{C}_{\mathcal{I}}$ | E8 998 | 0.909091 0.65 | 9112 | E190 | 0.5924 | | | 0.273973 | 0.1428 | 179471 | 200 | 0.111 | | | | | | | В | | | | ш | | | | | = = | |
| $^{\circ}$ | 20.800 | 1875 1877551 | 19178 | 595187 | 516981 | 462838 | 0376518 | 20115 | 2842 | 1 22 | 689655 | | | | | | | | | | | | | | | | | | |
| Ţ | | | | | | | | | | | | - | - | = = | | | - | | В | - | | - | в | - | | - | _ | = = | |
| $\frac{1}{2}$ | 780-750 | 0.77778 | 0.70229 | 0.70506 | 0.550781 | 0.456311 | 0.25222 | | | 269810 | | | | | | | | | В | | | | В | | | | | | |
| ar | 658.78 | 0.7 0.8 0.254077 | | | | 46 | 24557 | 19 | 88.5 | 2 | 9 19 | 2222 | | === | | _ | | | _ | | | | _ | | | | _ | | _ |
| Г | | | | | | = | | 0.28 | 0.23 | 200 | 800 | 0.02 | - | = = | | | | | В | - | | - | в | | | - | | = = | |
| Table 8: Table for | 10.630 | 0.857143 0.65 0.813953 | 72222 | 628361 | 522727 | 0540881 | 291545 | 263699 | 212996 | 102001 | 100 | 910989 | | - | | | _ | | | | | | | | | | | _ | |
| Э | _ | | | | | | | 20 | 18 | 10.0 | 852 | 992 | | | | | | - | В | | | | В | | - | | - | == | - |
| [Q | 520 600 | 0.9 | E | 999 | 183 | 0.453 | 58.0 | 123 | 0.169 | | 9897 | 0.621 | | = = | | | | | | | | | | | | | | = = | |
| Гa | 1.558 | 292y06 0 292y06 0 | 25928 | 2874 | 20462 | 35232 | 848 | 2331 | 70588 | 107595 | 125523 | | | | | | | | | | | | | | | | | | |
| Ε. | 20 | 988 | 9 | 9 9 | - 2 | 3 | 2 2 | 2 | 3 | - | 0 0 | 02 | - | = = | | | - | | В | - | - | - | В | - | | - | | = = | |
| | 50 500 | 1.5 1.608696 1.642857 | 630952 | 9 4 | 466981 | 354407 | 271875 | 159322 | 133144 | 0.107463 | 0.0241379 | M3389K | _ | | _ | _ | _ | | _ | _ | | _ | _ | | | _ | _ | | _ |
| | H | 299 | 229 | | | 55 | 238 | 랄 | 819 | 6820513 | _ | _ | _ | | | _ | | | | _ | | | _ | | | | | | _ |
| | 4ED - 450 | 0.45666 | 129 | 100 | 187 | 76 | 2 5 | 0.163 | _ | | | | | = = | | | | | | | | | | | | | | == | |
| | 358-4EB | 8 A70588 A51613 | 16000 | 346154 | 296296 | 90203 | 235577 | 0.14176 | 0.0816327 | 0238056 | 250024 | | | | | | | | | | | | | | | | | | |
| | ۳ | | - | | | _ | - | | _ | - | 5 0 | | - | = = | | | | 0.00 | | - | | | | | 0.00 | | ш с | = = | |
| | 310.350 | 05 0.28571 0.28571 | 0.3638 | 0.24202 | 919 | 02444 | 0.153172 | 0.0843882 | 0.0636364 | 0.023622 | | | | | | | | | В | | | | | | | | | | |
| | 300 | .5. .181818 | 290323 | 384211 | k | | 133333 JR69565 | 0434783 | 9698010 | | | | | | | | | | | | | | | | | | | | |
| | 230.30 | - | _ | | 20 | - | 7 5 | 8 | 3 | - | | - | - | = = | - | | - | | | - | | | 0 | | | - | | = = | |
| | 200.250 | 13333 | 27 | 0.0689655 | 0.0615385 | 0.097561 | 3 _ | _ | _ | _ | | _ | _ | | _ | _ | _ | | _ | _ | | _ | _ | | | _ | _ | | _ |
| | Г | | 92,128 | 0.0571439 | | _ | | _ | _ | | | _ | | | _ | _ | | | _ | | | _ | _ | | | _ | | | _ |
| | 150.20 | | 12.0 | 200 | 0.021 | 0.081 | | | | | | | | = = | - | | | | | | | | | | | | | = = | |
| | 100-150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 001 EE | | _ | | | _ | _ | _ | _ | _ | | | _ | | | _ | _ | _ | | _ | _ | _ | _ | _ | _ | | _ | | _ |
| | | | | _ = | | ٥ | _ = | | ٥ | _ 0 | | | ا ت | _ = | | ٥ | _ 0 | | | ا ت | | | ے | | | | | _ = | |
| | B St MeV/c | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MRS | p p D | ď. | 44 | íá | ă. | 44 | De. | Dis. | ä | 18 | å | ä | 68 | å | ji Di | ää | 8 Day | 5 Dag | 7 Dog | e Doy | 5 Dag | 5 Day | 5 Deg | 5 Day | 3 Dag | 5 Day | 2 Deg | T Des |
| | OHNE | 0.45 D. 45 g Dr 143 5 D | 13.5-18 | 18 225 Usy 22.5 Z. Do | 27315 | 31.5-36 | 36 405 Day 415 45 Day | 45.495 | 15 G B | 54585 | 13 675 | 97.5-72 | 72.785 | 76.5 St. Day | E 2.25 | 98-945 | 945.88 | 1685-10 | 108-112 5 Deg | 112.5-41.7 Deg | 121 5 126 Dev | 126-130 5 Dey | 130 5-135 Drg | 135-139.5 Deg | 144 148 5 Dec | 148 5-153 Day | 153-157 | 157 3 162 Deg 162 166 5 Dev | 1665-17 |
| | ے | | _ | | | ÷ | | - | ÷ | | | _ | _ | _ | | - | | | - | _ | | - | - | _ | | - | _ | | _ |

| | 1930-29III | 315882 | 922899 | 635714 | 2199 | 627 | ., | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------|--------------------------|------------|------------|-------------|------------|-------------|---|---------------------------------------|-----------|------------|-------------|---------------|----------------|------------|-----------------|--------------|------------|------------|------------|--------------|-------------|--------------|-------------|--------------|------------|-------------|---------------|---------------|-------------|--------------|--------------|----------|------------|
| | 1 020 061 | 34658 B. | _ | _ | _ | 0 647169 | _ | = 0 | | | | | 0 | | 0 0 | = 0 | 0 0 | | 0 | | | 0 0 | | - | | | - | 0 | | | - | - | - | 0.00 |
| | Н | 784 0.88 | _ | <u> </u> | _ | _ | _ | = = | | | | _ | - | = | | = 0 | | | | | | | | | = = | | | - | = = | | | - | 0 0 | |
| | 30 1850-1900 | 9 0.783784 2 0.754191 | | ŭ | = | 0.200244 | _ | - 0 | | | | | - | - | 0 0 | = 0 | | | | | | | | | = = | | | - | = = | = | | | 0 0 | |
| | 1800-1830 | | 0.711409 | _ | _ | _ | _ | 2 . | | | | _ | = 1 | = | | = 0 | | | | | | | | | | | | = 1 | | | | | | |
| | 1730-1800 | 922280 | 0.718579 | 1648734 | 0.57377 | 0.472222 | 32 | = 0 | | | | | | | | | | | | | | | | | = = | | | | = = | . = | | | | |
| | 309-1750 | 20038 | 191102 | 818189 | -PBS52 | 78-685 | 7.885 | Ģ | | | | | | | | | | | | _ | | | | | | | | | | | | | | |
| | 1659-170 | 331-6 | 71337 | 2882 | 16860 | 120 | 158 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1600-1650 | 0.80315 0.0 | _ | _ | _ | _ | _ | | 6 0 | 0 00 | | | | _ | 00 | = 0 | 0 0 | 0 00 | | | | 0 0 | 0 00 | - | = = | 0 00 | - | 0 1 | = = | 0 00 | | 0.0 | 0 0 | |
| | н | _ | 718817 | _ | _ | _ | _ | _ | | | | _ | - | = | _ | = 0 | | | | | ш с | | | | = = | | | - | = = | | | - | - 0 | |
| | 530 1559-180 | 0.0 | _ | = | = | _ | _ | 10.00.00 | - | | | | | = | - | = 0 | | | | | | | | | = = | | | - | = = | | | | 0 0 | |
| | 1588-1530 | _ | 0.703791 | _ | _ | _ | _ | _ | 03330 | | | - | - | = | - | - 0 | | | | | | | | | = = | | | - | = = | - | | 0 0 | | |
| | 1431430 | 0.830896 | 0.712513 | 0.631818 | 0.597398 | 0.488.622 | 0.464286 | 0.290343 | 1 . | | | | | | | | | | В | | | | | | = = | | | | = = | | | | | |
| gal | 1400-1-60 | 0.834916 | 616162.0 | 0.650094 | 0.568153 | 691000 | 0.405405 | 716777 | 0.0 | | | | | _ | | = 0 | | | | | | | | | | | | | | | | | | |
| eh, | 1350-1400 | 785124 | 729168 | 52,6189 | 1282011 | 1533211 | 12827 | 754587 | 2222 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-u | 13@4330 1 | | 25.75 | - | _ | 98.25 | - | 379121 | - | - | | _ | - | _ | | | | - | - | _ | | | | | | | | - | | | - | | | |
| čei | 1258-1399 13 | 829352 0.8 | | _ | - | - | - | 208374 0.2 | | - | - | _ | - | _ | 0 0 | = 0 | 0 0 | | | | ш. | | | | = = | | | - | = = | | | 00 | 0 0 | |
| I-I | | | | _ | <u>.</u> | - | - | = 0 | | - | _ | = | = | = | _ | = 0 | | | | | | | | | = = | | | - | = = | - | | | | |
| ANM-Rein-Sehgal | 1130-1200 1230 1230 | 2 0820946 | _ | <u>ـ</u> | = | - | - | | | | 2 | | | | - | | | | | | | | | | | | | - | | | | | 0 0 | |
| Y. | н | 00 | | _ | _ | 0.557719 | - | 0 0 | 18227 | 0 | | _ | - | _ | | = 0 | | | | | | | | | = = | | | - | = = | . = | | | | |
| ſеw | 1100-1150 | 0.29475 | 0.759636 | 0.68934 | 0.62265 | 1999 | 200 | 0.025940 | 0.711738 | 7 | 0.083333 | | | | _ | | | | | | | | | | | | | | | | | | | |
| Z | 000 1030 1030 1100 | 0.280172 | 0.756151 | 669735 | 0.6-49633 | 0.558 | 050292 | 1,42(b)/ 0,000 mm | 0.28228 | 0234048 | 8181810 | В | | _ | | | | | В | В | | | | 0 | | | 0 | | | | | | | |
| Histogram for New | 000-000 | 811494 | 764215 | 718415 | 646346 | 2808 | 168878 | 970 | 311673 | 2519IB | 125 | 157856 | | | | | | | | _ | | | | | | | _ | | | | | | | |
| ъm | 650-1000 | 1814732 | 77.7286 | STEELS! | 656827 | 27333 | 21332 | 162624 | 27.03 | 21817 | 623110 | 31.28 | | _ | | | | | _ | _ | | | | | | | | | | _ | _ | | | |
| gL | H | 0849776 | = | - | 0.649262 | 288134 | 200002 | 125521 | 20000 | _ | | | 92223 | 22 | | | | | | _ | | | | | | | | | | | | | | |
| stc | Н | _ | 77-887 | _ | _ | _ | _ | | 20013 | | _ | | 0.0454546 | | 0 0 | = 0 | 0 0 | 0 00 | | | | 0 0 | 0.00 | | - | 0.00 | | | - | | - | 0.0 | - | 0.00 |
| 田 | ۳ | 834821 0.8 | 0 | 7.0 16ZT | ď | d i | - | 200000 | 0 0 | | 173556 0.1 | | | | | = 0 | | | | | | | | | = = | | | - | = = | | | | 0 0 | |
| 2D | 730 800 800 830 | 8.0 | 77247 8.77 | _ | _ | - | - | = 0 | 0.0 | - | - | 204 B.12 | 262 | 10 | - | | | | | | | | | | = = | | | - | = = | - | | | | |
| or , | | 0 0 | 0 | _ | _ | Φ: | Φ: | = 0 | 0 0 | 0 0 | - | 987 91 | 262 0.07729-5 | 250 0 252 | 13 | = 0 | | | | | - | | | | | | | = 1 | | | | - | | |
| e f | 200-220 | 0.846154 | _ | Ť | - | _ | _ | _ | _ | _ | | _ | 0.0868263 | _ | | | | | | | | | | | | | | | | | | | | |
| abl | 659.70 | 76980 | 0.77094 | 0.739165 | 0.686785 | 0.630832 | 25/05/05/05 | 0.4990168 | 0.3330.4 | 0.270336 | 8290619 | 0.1390-6 | 0.0850062 | _ | 0.007 | | | | | | | | | | = = | | | | = = | . = | | | | |
| Ξ | E9-009 | 0.820399 | 0.77573 | 6746173 | 7612590 | 0.609761 | 1812181 | 0.012938 | 0346117 | 0.2541.28 | 0.193367 | 0.1-6336 | 2062280 | 0.0-69122 | 0.0144928 | | | | В | В | | | | 0 | | | 0 | | | | | | | |
| able 9: Table for 2D l | 250 600 | 1808989 | 178-4619 | 12:21 | 120002t | 1641457 | 556628 | 74894 | 132022 | 1250172 | 317858 | 1124613 | 10817301 | 0.0423729 | 10103093 | | | | _ | _ | | | | _ | | | _ | _ | | | _ | | | |
| ble | Н | 812332 | 78963 | 14241 | 51269 | 27.65 | 2,7883 | 5000 | 1 1 1 1 1 1 | 22303 | 72282 | 22696 | 1923 | _ | H212464 | | | | | _ | | | | | | | | | | | | _ | | |
| Ta | Ë | 741325 0.8 722011 0.8 | _ | Ť | _ | _ | _ | 204628 | _ | _ | _ | Ξ. | 0 1 | 0.0226148 0.0 | 2 . | = 0 | 0 0 | 0 | | | 000 | 0.0 | 0.00 | | = = | 0.00 | | | = = | | | 0.0 | | |
| | 450-30 | | | _ | 6 | | | = 0 | 0 0 | - | _ | = | | | | = 0 | | | | | | = = | | | = = | | | - | = = | | | 0 0 | 0 0 | |
| | 400-43 | 0.583034 | ÷ | 0.529918 | _ | | 938334 | | - | 0.17744 | _ | _ | 7 | 37 0.00-447928 | - | = 0 | | | | | | | | | | | | = 1 | | - | | | | |
| | 330-400 | 0.52264 | 0.47927 | 0.627 | 0.2098 | 98189 | 318072 | 0.292653 | 0.300875 | 0.13113 | | = | 0 1 | 2918000 | | | | | | | | | | | | | | - | | . = | | | | |
| | 300-330 | 0.298693 | 0.359365 | 0.372408 | 0.32415 | 18467 | 237522 | 0.100007 | 131656 | 0.099-54 | 0.0658882 | 0.0170428 | 0.0010015 | _ | | | | | | | | | | | | | | | | | | | | |
| | 230 300 | 225352 | 272854 | 264642 | 240964 | 186722 | 157462 | 107010 | 1052020 | 047888 | 0114465 | 710-2500 | | | | | | | | | | | | | | | | | | | | | | |
| | = | J73913 0.2 | _ | _ | = | = 1 | = : | 0.00000 | 9 6 | - | 8 | 2 | - | - | | 0 0 | | | | | _ | | | | = = | | | - | = = | | | | 0 0 | 0.00 |
| | 200-2 | 8.0 | | _ | _ | - | - | | 3 8 | | | | | | | = 0 | | | | | _ | = = | | | = = | | | - | = = | | | - | | |
| | 50 150-20 | 0.037037 | 0.0881226 | 0.0502959 | 0.0477273 | 0.02688 | 0.0135747 | 0.0000000000000000000000000000000000000 | | | | | - | | - | | | | | | | | | | | | | - | | - | | | | |
| | 100 100-150 | | | _ | _ | - | - | = 0 | | | | | - | | _ | = 0 | | | | | | | | | | | | - | | | | | | |
| | PV c 59-100 | | | _ | | - | - | = 0 | | | | | - | | - | 0.0 | | | | | | | | | = = | | | - | = = | | | | 0 0 | |
| | S 0.50 M | | | | | - | | = 0 | | | | | - | | | | | | | | | | | | = c | | | | = c | 4 5 | | | | 000 |
| | SWANA RS | 0.45 Day 45 9 Day | 9-135 Dag | 135-18 Deg | 18-22-5 Deg | 225-27 Deg | 2731 5 Deg | 313.35 Leg | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 5-85 Deg | 195 54 Deg | 24.28.5 Deg | 585-63 Deg | 867.5 Deg | 175-72 Deg | Cardinal Street | 103 of 102 S | 855-90 Deg | 30-945 Deg | 945.99 Deg | 99 103 5 Day | IR-1125 Dec | 12.5-117 Day | 17-1215 Day | 21 2 120 Day | 30 S15 Dog | 35 1395 Deg | 20 2 1 44 Day | 48 5 1 53 Day | 38-1575 Dev | 57.5-162 Day | 162 1665 Drg | 1175 Day | 5.5 181 De |
| | Z | - + | 200 | 13 | 8 | 24 1 | ev i | 5 5 | 4 4 | 4 | ę. | 3 | 20 1 | 3 | Ġ î | 21 | 2.5 | 172 | 98 | 26 | 98 | 1 5 | === | = ! | 4.5 | 2 | 21 | 2 | 1.2 | = | : 12 | 91 01 | 2 5 | : 2 |

| | 30.200 | 809524 | 563507 | 1613924 | 4877.0 | 222 | | | _ | _ | | | | | | | | | | | | | _ | | | | | | | | | | |
|-----------------------------|---------------|------------------------|-----------|------------|-----------------|------------|-----------|-------------|--------------|------------|---------------|----------|-------------|--------------|------------|-----------|------|--------------|------------|------------|--------------|---------------|---------|--------------|---------|---------|--------------|---------|-----------|---------|-------------|---------------|--------------|
| | 1900-1950 19 | 1329 | 282 | 888 | = 0 | 0.55556 | - | | _ | _ | _ | _ | _ | _ | | 0 0 | = 0 | 0 0 | | | | | _ | 0 0 | 0 0 | | 8 | 0 | 0 0 | 0 0 | | | |
| | Н | 16 | E | 191 | _ | _ | _ | | | | | | | | | 0 0 | = 0 | | | | | | | 0 0 | | | | | 0 0 | | | | |
| | 1830-1900 | 1611220 | | - | 0.202030 | | | | | | | | | | | | = 0 | | | | | | | | | | | | | | | | |
| | 1800-1850 | 0.815789 | 0.698895 | 0.627.737 | 0.442623 | 136364 | _ | | | _ | | | | | | | = 0 | | | | | | _ | | | | | | | | | | |
| | 1730-1800 | 792367 | 727488 | 1612894 | 4678 | 381932 | _ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1700-1750 | 824074 | 68835 | 652068 | 443300 | | 299991 | _ | _ | _ | _ | _ | _ | | | | | | | | | _ | _ | | | | | | | | | _ | |
| | 1 121 129 | 5248 0 | 62029 | 7574 | 9 6 | 46809 | - | 0 | | - | _ | _ | _ | _ | | 0 0 | = 0 | 0 0 | | | | | - | 0 0 | | | 0 | | 0 0 | 0 0 | | | |
| | ᄪ | 35 0.82 | | 84 852 | 200 | | | 2 | | | | | | | | | = 0 | = = | | | | | | | - | | | | | | - | | |
| | 1600 1650 | 0.871795 | _ | | 2007/12/0 | 0 0 | _ | - | 2 | | | | | | | 0 0 | = 0 | | | - | | | | | | | | | 0 0 | | | | |
| | 1530-1600 | 7625397 | | - | 0.469878 | | | 999910 | 2 | _ | _ | = | _ | _ | | | = 0 | | | | | | _ | | | | | | | | | | |
| | 1300-1350 | 0.823129 | 9.736546 | 0.654088 | 20172 | 71237 | 0.285714 | FF | _ | | | | | | | | = 0 | | | | | | | | | | | | - | | | | |
| | 1450-15III | 299981 | 714434 | 997.73 | 97979 | HING. | 33333 | 157856 | | | | | | | | | | | | | | | | | | | _ | | | | | | |
| 1 <u>8</u> 5 | Н | 1302 | 6911 | 83662 | 2000 P | 781167 | 32307 | 0.242424 | 85714 | _ | _ | _ | _ | _ | _ | | | | | | | | _ | | | | _ | _ | | | | | |
| Se | 1320-1400 14 | 813084 0.8 | _ | _ | 50.6667 | - | | | | | _ | _ | _ | _ | | 0 0 | = 0 | 0 0 | | | | | | 0 0 | | | | | 0 0 | 0 0 | | | |
| eľ- | 350 1330 | 0.0 | - | - | 3.0 | - | | 33 0.410236 | _ | 17 | = | = | = | = | | - | = 0 | | | - | | | _ | - | | | | | - | | | | |
| Srg | 1300-1 | 8 | _ | - | 0.548585 | 2450 | 0.25348 | 0.338983 | _ | | _ | | | | | | = 0 | | | | | | | | | | | | | | | | |
| l-Berger-Sehga | 1230-1300 | B-2052.0 | 0.735391 | 0.66913 | 1538.48 | 0.448387 | 0.342561 | 232 | _ | _ | _ | _ | _ | _ | | | = 0 | | | | | | _ | | | | | | | | | | |
| \geq | 1200-1250 | 105733 | 9252 | 911829 | 236066 | 67743 | 162191 | 0.312849 | 58365 | 0.285714 | | | | | | | | | | | | | | | | | | | | | | | |
| New AIN | 150-120 | 833866 | 95-92 | 879018 | 20000 | 9909 | 408915 | 333836 | _ | 11-2857 | | | | | | | | | | | | | | | | | | | | | | | |
| × | 0.1150 | 0 998368 | - | - | 543640 | 9 | 138365 | 29 B | - | 0.196429 0 | 12857 | _ | _ | _ | | 0 0 | = 0 | 0 0 | | | | | _ | 0 0 | | | | | 0 0 | | | | - |
| Š | 021 0011-0501 | 8.0 224.0.8 | _ | - | 58187 0.5 | _ | 628 0.3 | 199 | _ | | 0.130435 0.1 | 9231 | | | | | = 0 | | | - | | | | | - | | 0 | | | 0 0 | - | | |
| tor | 1030 | 0.0 | - | - | = = | | 18 0.394 | 14 0.347 | _ | _ | _ | 9.0 | | | | _ | = 0 | | | - | - | | _ | _ | - | - | | | _ | | - | | |
| | 10001 | 3 0.818653 | | | 11.00.000 | 0 = | - | 0.37884 | _ | _ | 9 1145455 | | | | | - | = 0 | | | | | | _ | - | | | | | - | | | | |
| щe. | 930-1000 | 0.83208 0.813-63 | 319 | 0.7453 | 0.507014 | | 0 | - | - | 0.22222 | = | 0.285714 | | | | | = 0 | | | | | | _ | | | | | | | | | | |
| Histogram | 999-999 | 802280 | 0.732008 | 0.700111 | 053570 | 158474 | 0.4673 | 0.372638 | 0.315938 | 0.213368 | 0.1509-6 | 0.149254 | 0.125 | | | | = 0 | | | | | | _ | | | | | | | | | | |
| $_{\rm ist}$ | 850-900 | 22022 | 0.782567 | 0.723615 | 0.6025.48 | 125250 | 0.455385 | 932038 | 0.253836 | 0.228395 | 0.202572 | 0.115044 | 0.088889 | 0.0450 | | | = 0 | | | | | | | | | | | | | | | | |
| I | 800-850 | 8-8-458 | 2028 | 731489 | 53056 673815 | 238062 | 762100 | 398879 | 311813 | 2540-22 | 188017 | 1.01667 | 033574 | 055231 | | | | | | | | | | | | | | | | | | | |
| 7 | 8 08 02 | 1224 | G IS | 337 | 1920 | 6725 | 1265 | 122982 | 20774 0 | 259352 | 90001 | 149296 | 851064 0 | (B33333 B | _ | 0.0833333 | - | | | | | | _ | | | | | | | | | | |
| OĽ | Г | | - | 236466 0.7 | andres up | 289545 0.5 | | _ | _ | 287346 0.2 | _ | _ | 0946372 0.0 | 0.057847 0.0 | 98698 | 2 . | = 0 | 0 0 | | | | | _ | 0.0 | | | | | 0 0 | | | | |
| table tor 21 | 789-758 | 0.0 | о ш | - | 9 6 | | - | 97 | 8 | 1 38 | Ť | _ | | | | 0 0 | = 0 | | | - | | | _ | 0 0 | | | | | 0 0 | | | | |
| g | 650-70 | 200180 | 0.785362 | 0.74886 | 0.0000 | 0.53826 | 989870 | 0.4229 | 0.34808 | 0.2746 | 0.2036 | 0.1-9563 | | | | 0.0356667 | = 0 | | | | | | _ | | | | | | | | | | |
| Ä | 029 009 | 1834184 | 0.77014 | 0.74735 | 17188810 | 0.561587 | 0.500339 | 0.418747 | 0.337145 | 0.232955 | 0.189654 | 0.1-8609 | 0.088785 | 0.0446927 | 0.0171648 | | = 0 | | | | | | _ | | | | | | | | | | |
| $\stackrel{\cdot}{\square}$ | 220-010 | 1,796713 | 786837 | 277396 | 6.633 | 578836 | 47668 | Am137 | 316955 | 235639 | 194822 | 128324 | 10804312 | 0.07512 | 0041-038 | | | | | | | | | | | | | | | | | | |
| ole | ۳ | 803861 0 | - | 988 | 5193 | 2134 | 1607 | 353491 | ĭ | 229012 0 | 8148 | = | 1719931 0 | = | 823399 | | = 0 | | | | | | _ | | | | _ | | | | | | |
| ap p | Ë | | | - | | - | - | _ | _ | _ | _ | _ | 3 | 3 | 29K3 0.00 | 0 0 | = 0 | | | | - | | _ | _ | - | - | | | 0 0 | 0 0 | - | | |
| _ | 450 500 | 7420470 | - | 0.638281 | 0.0000 | 0.465364 | 0.392-023 | 0.327259 | 0.27204 | Ť | _ | ÷ | _ | B 0215545 | 800 | - | = 0 | | | | | | | - | | | | | - | | | | |
| | 100-50 | 19189910 | 0.569575 | 0.535284 | 45827 | 1397871 | F 93397 | 0.285885 | 0.235261 | 0.17593 | 0.118939 | | | 0.00793003 | | | = 0 | | | | | | | | | | | | | | | | |
| | 330-400 | 20005 | 483322 | 40.4129 | 1222 | 322/28 | 275698 | 234525 | 172468 | 72721 | 0.101349 | 932300 | 10150616 | | | | | | | | | | | | | | _ | | | | | | |
| | 300-350 | 18137 | 223012 | 336159 | 219925 | 256354 | 200051 | 6899 | 137398 | | | 821020 | | | | | | | | | | | _ | | | | | | | | | | |
| | H | 283186 0. | _ | | 3,4736 | | | _ | - | = | 0.0115668 0.0 | 3 | | | | | = 0 | - | | | | | _ | | | | 0 | | | 0 0 | | | |
| | 233 300 | - | - | _ | | - | | _ | 0.00 SE 0.00 | 98 | 18 | = | _ | _ | | 0 0 | = 0 | | | - | - | | | - | | | | | - | | | | |
| | 200 230 | 787418 81 787418 81 | = | _ | 2000 | _ | | 0.044 | 0.021 | | | | | | | - | = 0 | | | - | | | | - | | | | | - | | | | |
| | 150.200 | 0.0930233 | 0.0700035 | 0.0401338 | 0.000000 | 0.00315936 | | | | | _ | _ | | | | | = 0 | | | | | | | | | | | | | | | | |
| | 100-150 | | | | | | | | | | | | | | | | = 0 | | | | | | | | | | | | | | | | |
| | C 50-100 | | | | = = | | | | _ | _ | | | | | | | = 0 | | | | | | _ | | | | | | | | | | |
| | 0.50 MeV/c | 0 | | - | | | | - | | | 8 | 8 | 8 | 8 | | | - | | | | _ | | | | | _ | - | | | | | | |
| | New ANAT B-S | ag ag | Deg | No. | 18.22 a Day | 5 Day | Sug 9 | 5 Day | 5 Day | 5 Day | 4 Dog 1 | 5 Day 1 | 3 Dog E | 5 Day 1 | 2 Deg 2 | 2 Dags | 2001 | 25 5 00 Dec | 00,045 Dev | 445.49 Dev | 99-103 5 Day | 165 5 168 Day | 125 Day | 12 5-117 Deg | 135 Dev | 305 Deg | 130 5435 Day | 395 Deg | (85140 bg | 120 Day | 13 1575 Dev | 157.5-162 Day | 162 1665 Deg |
| | New | 45 Deg | 9-135 | 135.18 De | 2000 | 27.3 | 315.3 | 36-40.5 De | 4.28 | 9.9 | 495.0 | 39 | 383.6 | 63.67 | 675-72 Day | PE I | 900 | S 5 5 00 Dec | 00.00 | 945.9 | 99-103 | 168.5 | 108-1 | 125 | 12 | 136-15 | 2 E | 156.1 | 9 | 9.1 | 57.53 | 157.5 | 162 1 |

$\nu ext{-Mode}\ |t|$ and Q^2 plots are below:

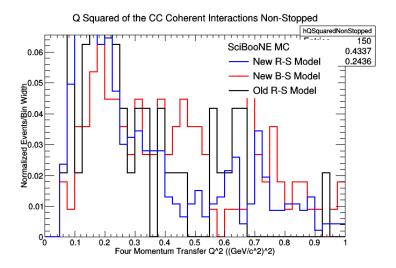


Figure 11:

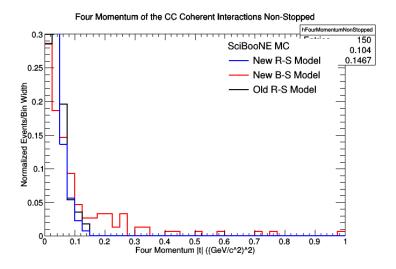


Figure 12:

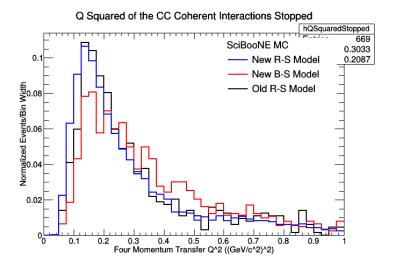


Figure 13:

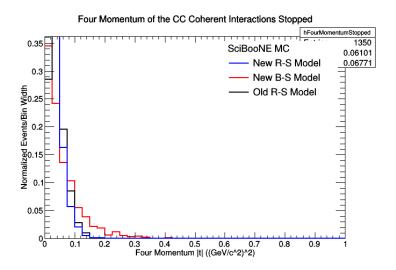


Figure 14:

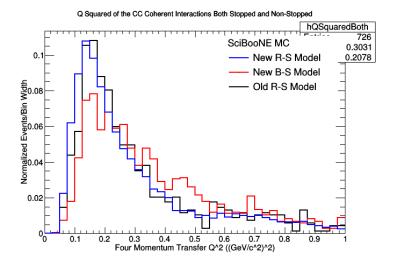


Figure 15:

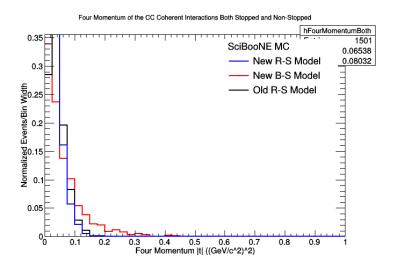


Figure 16:

 $\bar{\nu}$ -Mode |t| and Q^2 plots are below:

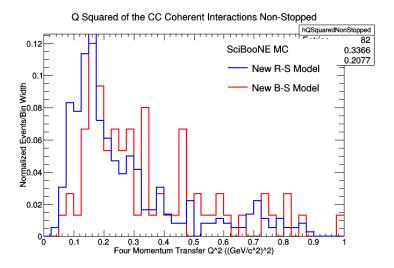


Figure 17:

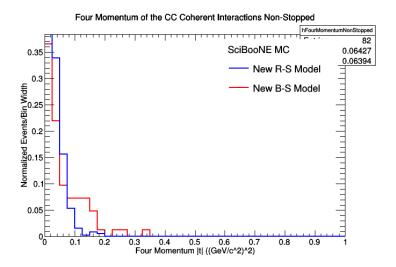


Figure 18:

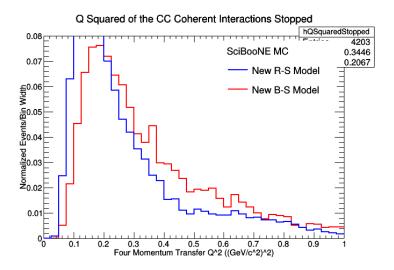


Figure 19:

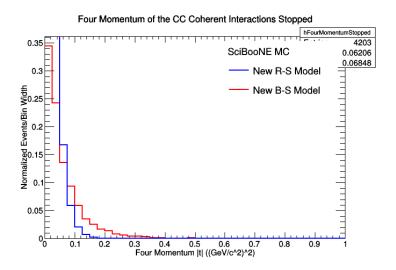


Figure 20:

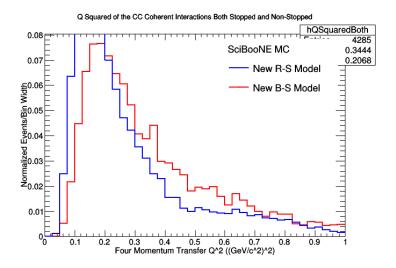


Figure 21:

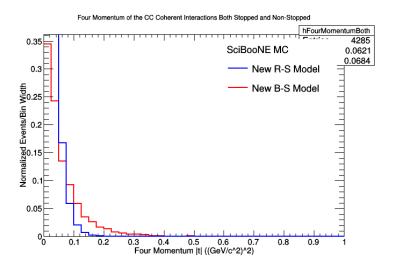


Figure 22:

A Appendix: Sample Details

Appendix on samples

A.1 ν -Mode Rein-Sehgal NEUTv5.3.6

A sample of 1,000,000 ν interactions were simulated using the NEUT generator (v5.3.6) and the Rein-Sehgal model for coherent pion production. This sample correspond to the file labeled

SciBooNE_numu_coh_RooTrack.root

found at the following link (put link to sample here).

A.2 ν -Mode Berger-Sehgal NEUTv5.3.6

A sample of 1,000,000 ν interactions were simulated using the NEUT generator (v5.3.6) and the Berger-Sehgal model for coherent pion production. This sample correspond to the file labeled

SciBooNE_numu_coh_RooTrack_NEW.root

found at the following link (put link to sample here).

A.3 ν -Mode Rein-Sehgal NEUTvx.x.x

A sample of $100,000 \nu$ interactions were simulated using the NEUT generator (vx.x.x, believed to be the version used by the SciBooNE collaboration in the original publication) and the corresponding older Rein-Sehgal model for coherent pion production. This sample correspond to the file labeled

SciBooNE_numu_coh_OLDNEUT_RooTrack.root

found at the following link (put link to sample here).

A.4 barv-Mode Rein-Sehgal NEUTv5.3.6

A sample of 1,000,000 $\bar{\nu}$ interactions were simulated using the NEUT generator (v5.3.6) and the Rein-Sehgal model for coherent pion production. This sample correspond to the file labeled

SciBooNE_numubar_coh_RooTrack.root

found at the following link (put link to sample here).

A.5 $\bar{\nu}$ -Mode Berger-Sehgal NEUTv5.3.6

A sample of 1,000,000 $\bar{\nu}$ interactions were simulated using the NEUT generator (v5.3.6) and the Berger-Sehgal model for coherent pion production. This sample correspond to the file labeled

SciBooNE_numubar_coh_RooTrack_NEW.root

found at the following link (put link to sample here).

A.6 Vertex Distributions

The events were all given a random initial point that was generated with the goal that the vertex distributions of this simulation would closely match the vertex distributions that Hiraide (need to put a reference) showed in his thesis. This was done by... etc.

Put in the code for how we made the vertex distributions of the interactions.

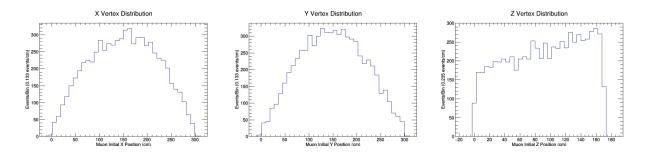


Figure 23: Vertex distributions of the events in the new Rein-Sehgal sample.

A.7 NewNMReinSehgal.C

This file is the macro that corresponds to the "NewNMReinSehgal.h" file, which connects with this file: "SciBooNE_numu_coh_RooTrack.root". This file performs the main analysis for this generated sample, and then organizes the information into many different histograms. The histograms are then written to a file titled "totalmuoninfoRS.root" inside the "ROOTFILES" directory. The "ROOTFILES" directory is included in the SciBooNE-MC repository (it is absolutely pertinent that this directory be located where the macro files are located due to how the calls of the combined data macros reference the now saved histograms). When this macro is run (which can take a while), it also plots a few different histograms. The histograms that are plotted are the ones shown in the figures below with descriptions included with the corresponding figures. The order that the histograms appear in this paper is the same order they will be shown when this macro is run in root.

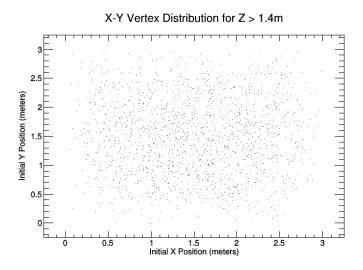


Figure 24: New ν -Mode Rein-Sehgal X-Y vertex distributions for muons that made it to the MRD and penetrated at least to the third layer of steel.

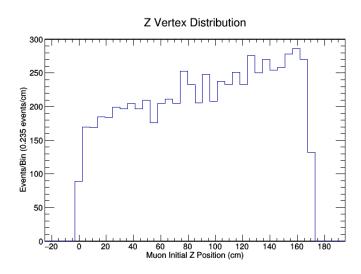


Figure 25: New ν -Mode Rein-Sehgal Z vertex distributions for the interactions.

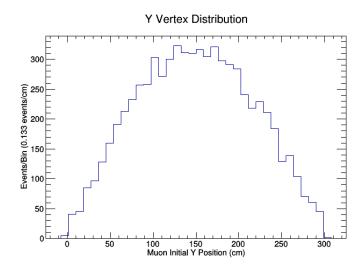


Figure 26: New ν -Mode Rein-Sehgal Y vertex distributions for the interactions.

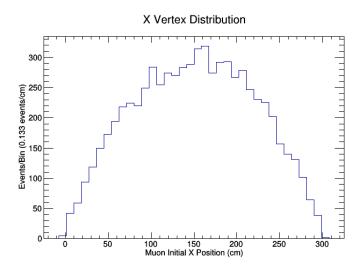


Figure 27: New ν -Mode Rein-Sehgal X vertex distributions for the interactions.

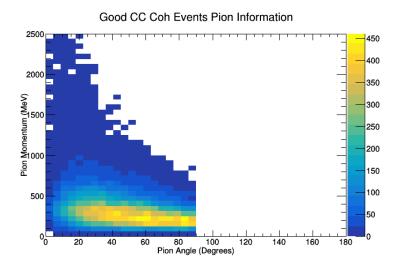


Figure 28: This is a 2D histogram for the momentum and angle of the pion in the CC Coh Pion events that met the qualification of being "good".

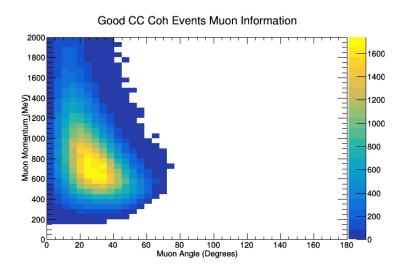


Figure 29: This is a 2D histogram for the momentum and angle of the muon in the CC Coh Pion events that met the qualification of being "good".

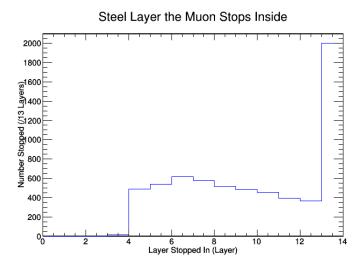


Figure 30: This histogram shows the amount of muons that embedded (or "Stopped") in a corresponding layer of steel in our simulation.

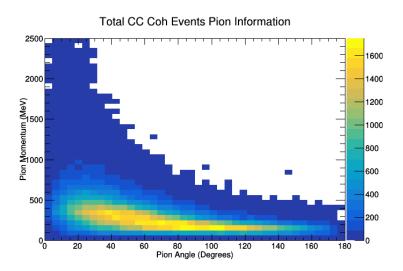


Figure 31: This is a 2D histogram for the momentum and angle of the pion in the total CC Coh Pion events.

Total CC Coh Events Muon Information Muon Momentum (MeV) Muon Angle (Degrees)

Figure 32: This is a 2D histogram for the momentum and angle of the muon in the total CC Coh Pion events.

The NewNMReinSehgal.C macro also calculates many different quantities for the generated simulation of the events and saves the information in histograms that are later called upon through the plotting macros (which are after all of the analysis macros). The first quantity that is calculated for the different vertexes is the momentum of both the muon and the pion, which are both calculated using the equations:

$$|\vec{p}_{\mu}| = \sqrt{P_{\mu_x}^2 + P_{\mu_y}^2 + P_{\mu_z}^2} \tag{1}$$

$$|\vec{p}_{\pi}| = \sqrt{P_{\pi_x}^2 + P_{\pi_y}^2 + P_{\pi_z}^2} \tag{2}$$

The momentum is reported in units of MeV/c.

The next quantity that is calculated in the macro is the angle from the beam-direction for both the muon and the pion, which are labeled as either θ_{μ} , or θ_{π} , respectively. The angle from the beam-direction is the same as the angle from the z-direction, and this angle is known as the azimuthal angle. The calculation of the azimuthal angle is slightly more involved than the simple calculation used for finding the magnitude of the momentum of the two particles, and is calculated using the equations:

$$\theta_{\mu} = tan^{-1}(\sqrt{P_{\mu_x}^2 + P_{\mu_y}^2}/P_{\mu_z}) \tag{3}$$

$$\theta_{\pi} = tan^{-1}(\sqrt{P_{\pi_x}^2 + P_{\pi_y}^2}/P_{\pi_z}) \tag{4}$$

The angles are reported in units of °, and should run from 0° to 180°. In the case of Charged-Current Coherent Pion Production, the angle should never be larger than 90°.

The last two quantities that this analysis macro calculates are the two different types of four-momentum transfers specific to this interaction, which are Q^2 and |t|. The Q^2 corresponds to the four-momentum transfer from the neutrino and muon to the nucleus and pion, and is calculated using the equation:

$$Q^2 = |(P_{\nu_{\mu}} - P_{\mu})^2| \tag{5}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute Q^2 :

$$Q^{2} = |(P_{\nu_{\mu,x}} - P_{\mu_{x}})^{2} + (P_{\nu_{\mu,y}} - P_{\mu_{y}})^{2} + (P_{\nu_{\mu,z}} - P_{\mu_{z}})^{2} + (P_{\nu_{\mu,E}} - P_{\mu_{E}})^{2}|$$

$$(6)$$

 Q^2 is reported in units of $(MeV/c)^2$.

The |t| corresponds to the four-momentum transfer from the neutrino, muon, and pion to the nucleus, and is calculated using the equation:

$$|t| = |(Q - P_{\pi})^{2}| = |(P_{\nu_{\mu}} - P_{\mu} - P_{\pi})^{2}| \tag{7}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute |t|:

$$|t| = |(P_{\nu_{\mu,x}} - P_{\mu_x} - P_{\pi_x})^2 + (P_{\nu_{\mu,y}} - P_{\mu_y} - P_{\pi_y})^2 + (P_{\nu_{\mu,z}} - P_{\mu_z} - P_{\pi_z})^2 + (P_{\nu_{\mu,E}} - P_{\mu_E} - P_{\pi_E})^2|$$
(8)

|t| is reported in units of $(MeV/c)^2$.

A.8 NewNMBergerSehgal.C

This file is the macro that corresponds to the "NewNMBergerSehgal.h" file, which connects with this file: "SciBooNE_numu_coh_RooTrack_NEW.root". This file performs the main analysis for this generated sample, and then organizes the information into many different histograms. The histograms are then written to a file titled "totalmuoninfoBS.root" inside the "ROOTFILES" directory. The "ROOTFILES" directory is included in the SciBooNE-MC repository (it is absolutely pertinent that this directory be located where the macro files are located due to how the calls of the combined data macros reference the now saved histograms).

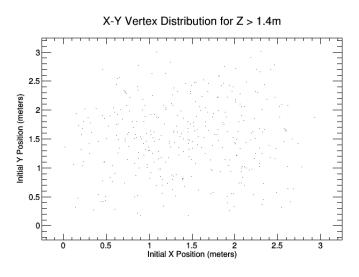


Figure 33: New ν -Mode Berger-Sehgal X-Y vertex distributions for muons that made it to the MRD and penetrated at least to the third layer of steel.

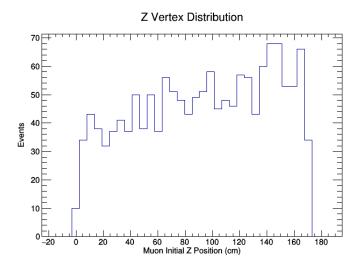


Figure 34: New ν -Mode Berger-Sehgal Z vertex distributions for the interactions.

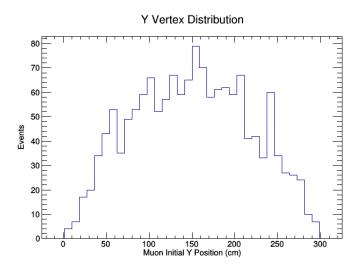


Figure 35: New ν -Mode Berger-Sehgal Y vertex distributions for the interactions.

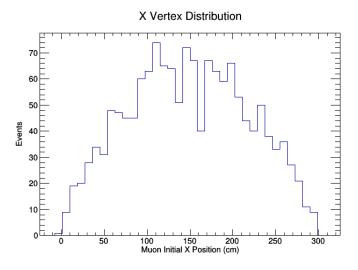


Figure 36: New ν -Mode Berger-Sehgal X vertex distributions for the interactions.

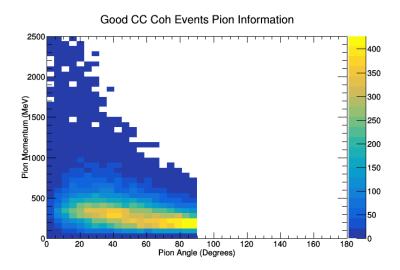


Figure 37: This is a 2D histogram for the momentum and angle of the pion in the CC Coh Pion events that met the qualification of being "good".

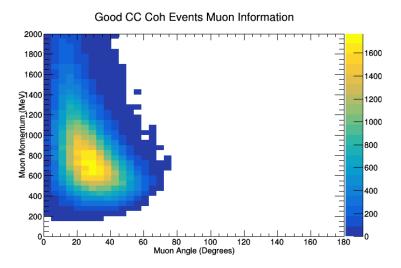


Figure 38: This is a 2D histogram for the momentum and angle of the muon in the CC Coh Pion events that met the qualification of being "good".!

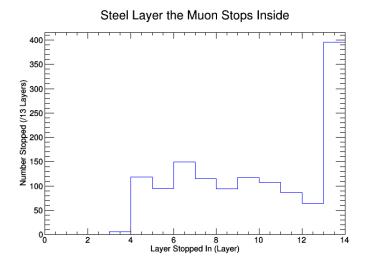


Figure 39: This histogram shows the amount of muons that embedded (or "Stopped") in a corresponding layer of steel in our simulation.

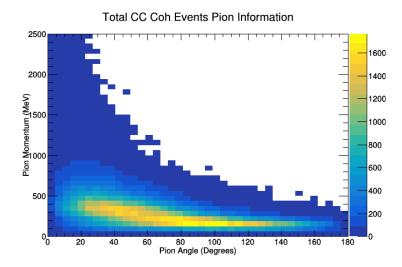


Figure 40: This is a 2D histogram for the momentum and angle of the pion in the total CC Coh Pion events.

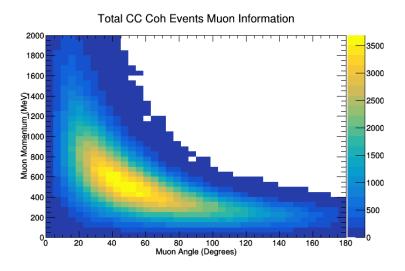


Figure 41: This is a 2D histogram for the momentum and angle of the muon in the total CC Coh Pion events.

The NewNMBergerSehgal.C macro also calculates many different quantities for the generated simulation of the events and saves the information in histograms that are later called upon through the plotting macros (which are after all of the analysis macros). The first quantity that is calculated for the different vertexes is the momentum of both the muon and the pion, which are both calculated using the equations:

$$|\vec{p}_{\mu}| = \sqrt{P_{\mu_x}^2 + P_{\mu_y}^2 + P_{\mu_z}^2} \tag{9}$$

$$|\vec{p}_{\pi}| = \sqrt{P_{\pi_x}^2 + P_{\pi_y}^2 + P_{\pi_z}^2} \tag{10}$$

The momentum is reported in units of MeV/c.

The next quantity that is calculated in the macro is the angle from the beam-direction for both the muon and the pion, which are labeled as either θ_{μ} , or θ_{π} , respectively. The angle from the beam-direction is the same as the angle from the z-direction, and this angle is known as the azimuthal angle. The calculation of the azimuthal angle is slightly more involved than the simple calculation used for finding the magnitude of the momentum of the two particles, and is calculated using the equations:

$$\theta_{\mu} = tan^{-1}(\sqrt{P_{\mu_x}^2 + P_{\mu_y}^2}/P_{\mu_z}) \tag{11}$$

$$\theta_{\pi} = tan^{-1} \left(\sqrt{P_{\pi_x}^2 + P_{\pi_y}^2} / P_{\pi_z} \right) \tag{12}$$

The angles are reported in units of °, and should run from 0° to 180°. In the case of Charged-Current Coherent Pion Production, the angle should never be larger than 90°.

The last two quantities that this analysis macro calculates are the two different types of four-momentum transfers specific to this interaction, which are Q^2 and |t|. The Q^2 corresponds to the four-momentum transfer from the neutrino and muon to the nucleus and pion, and is calculated using the equation:

$$Q^2 = |(P_{\nu_{\mu}} - P_{\mu})^2| \tag{13}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute Q^2 :

$$Q^{2} = |(P_{\nu_{\mu,x}} - P_{\mu_{x}})^{2} + (P_{\nu_{\mu,y}} - P_{\mu_{y}})^{2} + (P_{\nu_{\mu,z}} - P_{\mu_{z}})^{2} + (P_{\nu_{\mu,E}} - P_{\mu_{E}})^{2}|$$
(14)

 Q^2 is reported in units of $(MeV/c)^2$.

The |t| corresponds to the four-momentum transfer from the neutrino, muon, and pion to the nucleus, and is calculated using the equation:

$$|t| = |(Q - P_{\pi})^{2}| = |(P_{\nu_{\mu}} - P_{\mu} - P_{\pi})^{2}| \tag{15}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute |t|:

$$|t| = |(P_{\nu_{\mu,x}} - P_{\mu_x} - P_{\pi_x})^2 + (P_{\nu_{\mu,y}} - P_{\mu_y} - P_{\pi_y})^2 + (P_{\nu_{\mu,z}} - P_{\mu_z} - P_{\pi_z})^2 + (P_{\nu_{\mu,E}} - P_{\mu_E} - P_{\pi_E})^2|$$
 (16)

|t| is reported in units of $(MeV/c)^2$.

A.9 OldNMReinSehgal.C

This file is the macro that corresponds to the "OldNMReinSehgal.h" file, which connects with this file: "SciBooNE_numu_coh_OLDNEUT_RooTrack.root". This file performs the main analysis for this generated sample, and then organizes the information into many different histograms. The histograms are then written to a file titled "totalmuoninfoOBS.root" inside the "ROOTFILES" directory. The "ROOTFILES" directory is included in the SciBooNE-MC repository (it is absolutely pertinent that this directory be located where the macro files are located due to how the calls of the combined data macros reference the now saved histograms).

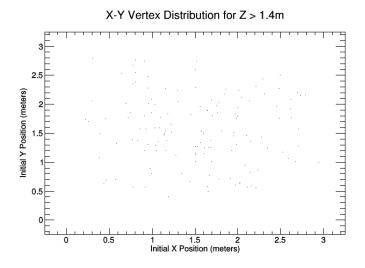


Figure 42: Old ν -Mode Rein-Sehgal X-Y vertex distributions for muons that made it to the MRD and penetrated at least to the third layer of steel.

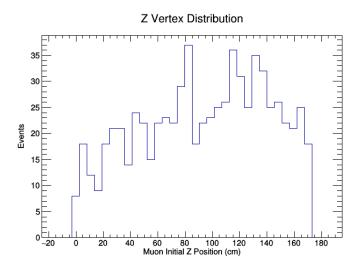


Figure 43: Old ν -Mode Rein-Sehgal Z vertex distributions for the interactions.

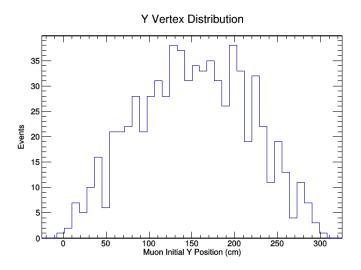


Figure 44: Old ν -Mode Rein-Sehgal Y vertex distributions for the interactions.

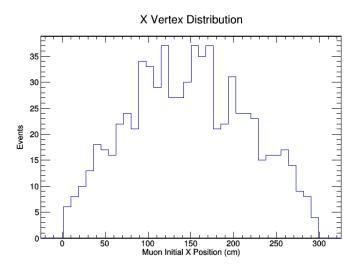


Figure 45: Old ν -Mode Rein-Sehgal X vertex distributions for the interactions.

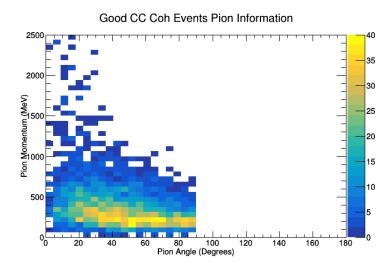


Figure 46: This is a 2D histogram for the momentum and angle of the pion in the CC Coh Pion events that met the qualification of being "good".

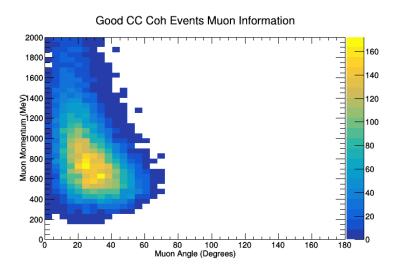


Figure 47: This is a 2D histogram for the momentum and angle of the muon in the CC Coh Pion events that met the qualification of being "good".

Steel Layer the Muon Stops Inside

Figure 48: This histogram shows the amount of muons that embedded (or "Stopped") in a corresponding layer of steel in our simulation.

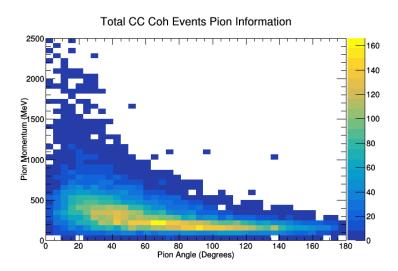


Figure 49: This is a 2D histogram for the momentum and angle of the pion in the total CC Coh Pion events.

Total CC Coh Events Muon Information Muon Momentum (MeV) 1200 800 800 800 Muon Angle (Degrees)

Figure 50: This is a 2D histogram for the momentum and angle of the muon in the total CC Coh Pion events.

The OldNMReinSehgal.C macro also calculates many different quantities for the generated simulation of the events and saves the information in histograms that are later called upon through the plotting macros (which are after all of the analysis macros). The first quantity that is calculated for the different vertexes is the momentum of both the muon and the pion, which are both calculated using the equations:

$$|\vec{p}_{\mu}| = \sqrt{P_{\mu_x}^2 + P_{\mu_y}^2 + P_{\mu_z}^2} \tag{17}$$

$$|\vec{p}_{\pi}| = \sqrt{P_{\pi_x}^2 + P_{\pi_y}^2 + P_{\pi_z}^2} \tag{18}$$

The momentum is reported in units of MeV/c.

The next quantity that is calculated in the macro is the angle from the beam-direction for both the muon and the pion, which are labeled as either θ_{μ} , or θ_{π} , respectively. The angle from the beam-direction is the same as the angle from the z-direction, and this angle is known as the azimuthal angle. The calculation of the azimuthal angle is slightly more involved than the simple calculation used for finding the magnitude of the momentum of the two particles, and is calculated using the equations:

$$\theta_{\mu} = tan^{-1}(\sqrt{P_{\mu_x}^2 + P_{\mu_y}^2}/P_{\mu_z}) \tag{19}$$

$$\theta_{\pi} = tan^{-1} \left(\sqrt{P_{\pi_x}^2 + P_{\pi_y}^2} / P_{\pi_z} \right) \tag{20}$$

The angles are reported in units of °, and should run from 0° to 180°. In the case of Charged-Current Coherent Pion Production, the angle should never be larger than 90°.

The last two quantities that this analysis macro calculates are the two different types of four-momentum transfers specific to this interaction, which are Q^2 and |t|. The Q^2 corresponds to the four-momentum transfer from the neutrino and muon to the nucleus and pion, and is calculated using the equation:

$$Q^2 = |(P_{\nu_{\mu}} - P_{\mu})^2| \tag{21}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute Q^2 :

$$Q^{2} = |(P_{\nu_{\mu,x}} - P_{\mu_{x}})^{2} + (P_{\nu_{\mu,y}} - P_{\mu_{y}})^{2} + (P_{\nu_{\mu,z}} - P_{\mu_{z}})^{2} + (P_{\nu_{\mu,E}} - P_{\mu_{E}})^{2}|$$
(22)

 Q^2 is reported in units of $(MeV/c)^2$.

The |t| corresponds to the four-momentum transfer from the neutrino, muon, and pion to the nucleus, and is calculated using the equation:

$$|t| = |(Q - P_{\pi})^{2}| = |(P_{\nu_{\mu}} - P_{\mu} - P_{\pi})^{2}| \tag{23}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute |t|:

$$|t| = |(P_{\nu_{\mu,x}} - P_{\mu_x} - P_{\pi_x})^2 + (P_{\nu_{\mu,y}} - P_{\mu_y} - P_{\pi_y})^2 + (P_{\nu_{\mu,z}} - P_{\mu_z} - P_{\pi_z})^2 + (P_{\nu_{\mu,E}} - P_{\mu_E} - P_{\pi_E})^2|$$
(24)

|t| is reported in units of $(MeV/c)^2$.

A.10 NewANMReinSehgal.C

This file is the macro that corresponds to the "NewANMReinSehgal.h" file, which connects with this file: "SciBooNE_numubar_coh_RooTrack.root". This file performs the main analysis for this generated sample, and then organizes the information into many different histograms. The histograms are then written to a file titled "totalmuoninfoRSBar.root" inside the "ROOTFILES" directory. The "ROOTFILES" directory is included in the SciBooNE-MC repository (it is absolutely pertinent that this directory be located where the macro files are located due to how the calls of the combined data macros reference the now saved histograms).

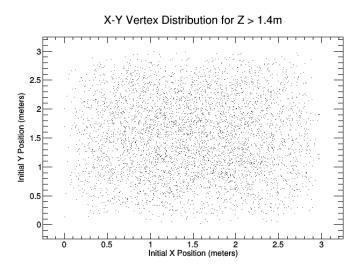


Figure 51: New $\bar{\nu}$ -Mode Rein-Sehgal X-Y vertex distributions for muons that made it to the MRD and penetrated at least to the third layer of steel.

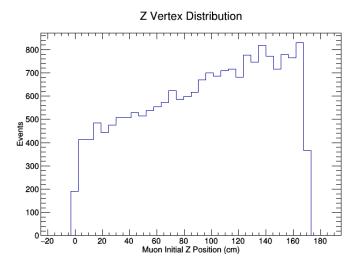


Figure 52: New $\bar{\nu}$ -Mode Rein-Sehgal Z vertex distributions for the interactions.

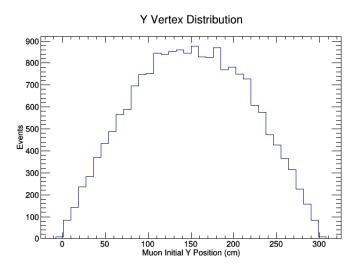


Figure 53: New $\bar{\nu}$ -Mode Rein-Sehgal Y vertex distributions for the interactions.

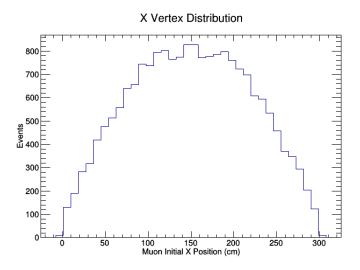


Figure 54: New $\bar{\nu}$ -Mode Rein-Sehgal X vertex distributions for the interactions.

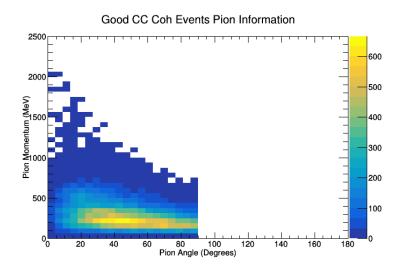


Figure 55: This is a 2D histogram for the momentum and angle of the pion in the CC Coh Pion events that met the qualification of being "good".

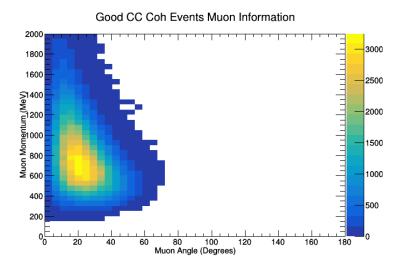


Figure 56: This is a 2D histogram for the momentum and angle of the muon in the CC Coh Pion events that met the qualification of being "good".

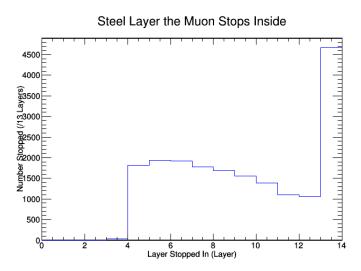


Figure 57: This histogram shows the amount of muons that embedded (or "Stopped") in a corresponding layer of steel in our simulation.

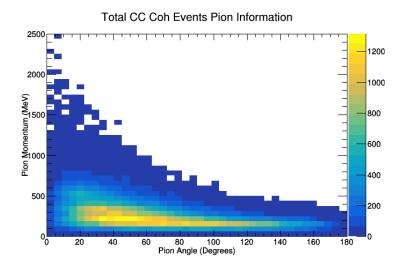


Figure 58: This is a 2D histogram for the momentum and angle of the pion in the total CC Coh Pion events.

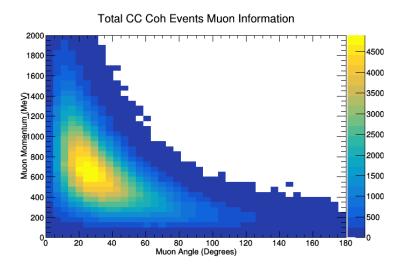


Figure 59: This is a 2D histogram for the momentum and angle of the muon in the total CC Coh Pion events.

The NewANMReinSehgal.C macro also calculates many different quantities for the generated simulation of the events and saves the information in histograms that are later called upon through the plotting macros (which are after all of the analysis macros). The first quantity that is calculated for the different vertexes is the momentum of both the muon and the pion, which are both calculated using the equations:

$$|\vec{p}_{\mu}| = \sqrt{P_{\mu_x}^2 + P_{\mu_y}^2 + P_{\mu_z}^2} \tag{25}$$

$$|\vec{p}_{\pi}| = \sqrt{P_{\pi_x}^2 + P_{\pi_y}^2 + P_{\pi_z}^2} \tag{26}$$

The momentum is reported in units of MeV/c.

The next quantity that is calculated in the macro is the angle from the beam-direction for both the muon and the pion, which are labeled as either θ_{μ} , or θ_{π} , respectively. The angle from the beam-direction is the same as the angle from the z-direction, and this angle is known as the azimuthal angle. The calculation of the azimuthal angle is slightly more involved than the simple calculation used for finding the magnitude of the momentum of the two particles, and is calculated using the equations:

$$\theta_{\mu} = tan^{-1}(\sqrt{P_{\mu_x}^2 + P_{\mu_y}^2}/P_{\mu_z}) \tag{27}$$

$$\theta_{\pi} = tan^{-1}(\sqrt{P_{\pi_x}^2 + P_{\pi_y}^2}/P_{\pi_z}) \tag{28}$$

The angles are reported in units of °, and should run from 0° to 180°. In the case of Charged-Current Coherent Pion Production, the angle should never be larger than 90°.

The last two quantities that this analysis macro calculates are the two different types of four-momentum transfers specific to this interaction, which are Q^2 and |t|. The Q^2 corresponds to the four-momentum transfer from the neutrino and muon to the nucleus and pion, and is calculated using the equation:

$$Q^2 = |(P_{\nu_{\mu}} - P_{\mu})^2| \tag{29}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute Q^2 :

$$Q^{2} = |(P_{\nu_{\mu,x}} - P_{\mu_{x}})^{2} + (P_{\nu_{\mu,y}} - P_{\mu_{y}})^{2} + (P_{\nu_{\mu,z}} - P_{\mu_{z}})^{2} + (P_{\nu_{\mu,E}} - P_{\mu_{E}})^{2}|$$
(30)

 Q^2 is reported in units of $(MeV/c)^2$.

The |t| corresponds to the four-momentum transfer from the neutrino, muon, and pion to the nucleus, and is calculated using the equation:

$$|t| = |(Q - P_{\pi})^{2}| = |(P_{\nu_{\mu}} - P_{\mu} - P_{\pi})^{2}| \tag{31}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute |t|:

$$|t| = |(P_{\nu_{\mu,x}} - P_{\mu_x} - P_{\pi_x})^2 + (P_{\nu_{\mu,y}} - P_{\mu_y} - P_{\pi_y})^2 + (P_{\nu_{\mu,z}} - P_{\mu_z} - P_{\pi_z})^2 + (P_{\nu_{\mu,E}} - P_{\mu_E} - P_{\pi_E})^2|$$
(32)

|t| is reported in units of $(MeV/c)^2$.

A.11 NewANMBergerSehgal.C

This file is the macro that corresponds to the "NewANMBergerSehgal.h" file, which connects with this file: "SciBooNE_numubar_coh_RooTrack_NEW.root". This file performs the main analysis for this generated sample, and then organizes the information into many different histograms. The histograms are then written to a file titled "totalmuoninfoBSBar.root" inside the "ROOTFILES" directory. The "ROOTFILES" directory is included in the SciBooNE-MC repository (it is absolutely pertinent that this directory be located where the macro files are located due to how the calls of the combined data macros reference the now saved histograms).

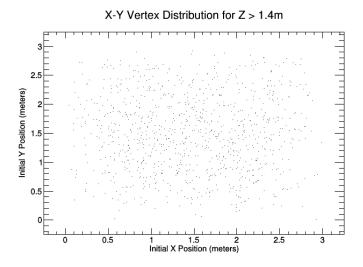


Figure 60: New $\bar{\nu}$ -Mode Berger-Sehgal X-Y vertex distributions for muons that made it to the MRD and penetrated at least to the third layer of steel.

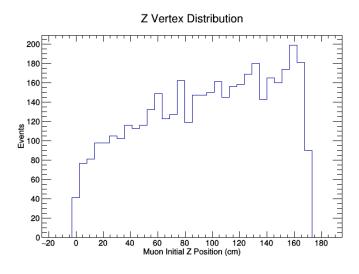


Figure 61: New $\bar{\nu}$ -Mode Berger-Sehgal Z vertex distributions for the interactions.

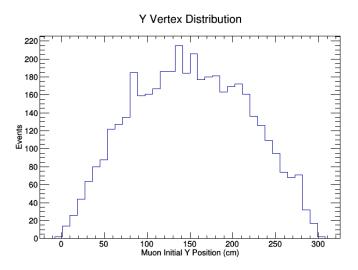


Figure 62: New $\bar{\nu}$ -Mode Berger-Sehgal Y vertex distributions for the interactions.

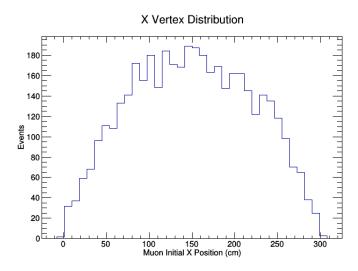


Figure 63: New $\bar{\nu}$ -Mode Berger-Sehgal X vertex distributions for the interactions.

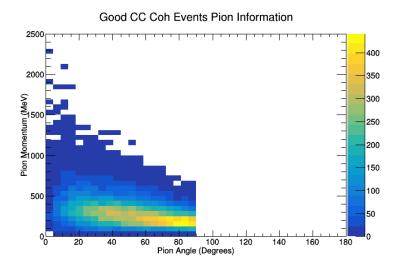


Figure 64: This is a 2D histogram for the momentum and angle of the pion in the CC Coh Pion events that met the qualification of being "good".

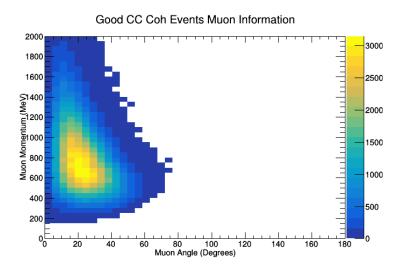


Figure 65: This is a 2D histogram for the momentum and angle of the muon in the CC Coh Pion events that met the qualification of being "good".

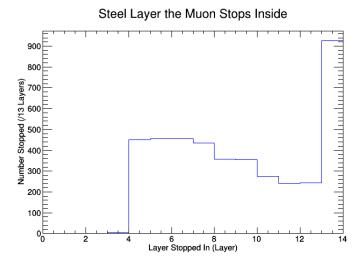


Figure 66: This histogram shows the amount of muons that embedded (or "Stopped") in a corresponding layer of steel in our simulation.

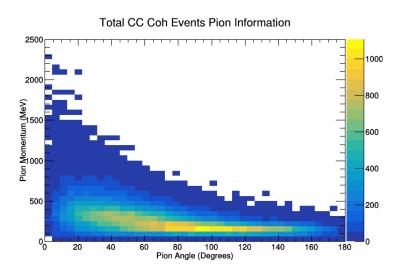


Figure 67: This is a 2D histogram for the momentum and angle of the pion in the total CC Coh Pion events.

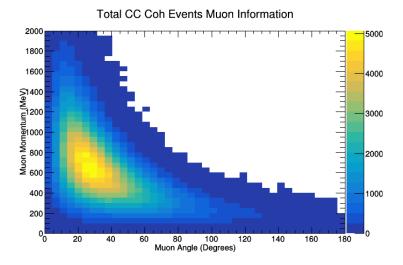


Figure 68: This is a 2D histogram for the momentum and angle of the muon in the total CC Coh Pion events.

The NewANMBergerSehgal.C macro also calculates many different quantities for the generated simulation of the events and saves the information in histograms that are later called upon through the plotting macros (which are after all of the analysis macros). The first quantity that is calculated for the different vertexes is the momentum of both the muon and the pion, which are both calculated using the equations:

$$|\vec{p}_{\mu}| = \sqrt{P_{\mu_x}^2 + P_{\mu_y}^2 + P_{\mu_z}^2} \tag{33}$$

$$|\vec{p}_{\pi}| = \sqrt{P_{\pi_x}^2 + P_{\pi_y}^2 + P_{\pi_z}^2} \tag{34}$$

The momentum is reported in units of MeV/c.

The next quantity that is calculated in the macro is the angle from the beam-direction for both the muon and the pion, which are labeled as either θ_{μ} , or θ_{π} , respectively. The angle from the beam-direction is the same as the angle from the z-direction, and this angle is known as the azimuthal angle. The calculation of the azimuthal angle is slightly more involved than the simple calculation used for finding the magnitude of the momentum of the two particles, and is calculated using the equations:

$$\theta_{\mu} = tan^{-1}(\sqrt{P_{\mu_x}^2 + P_{\mu_y}^2}/P_{\mu_z}) \tag{35}$$

$$\theta_{\pi} = tan^{-1}(\sqrt{P_{\pi_x}^2 + P_{\pi_y}^2}/P_{\pi_z}) \tag{36}$$

The angles are reported in units of °, and should run from 0° to 180°. In the case of Charged-Current Coherent Pion Production, the angle should never be larger than 90°.

The last two quantities that this analysis macro calculates are the two different types of four-momentum transfers specific to this interaction, which are Q^2 and |t|. The Q^2 corresponds to the four-momentum transfer from the neutrino and muon to the nucleus and pion, and is calculated using the equation:

$$Q^2 = |(P_{\nu_{\mu}} - P_{\mu})^2| \tag{37}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute Q^2 :

$$Q^{2} = |(P_{\nu_{\mu,x}} - P_{\mu_{x}})^{2} + (P_{\nu_{\mu,y}} - P_{\mu_{y}})^{2} + (P_{\nu_{\mu,z}} - P_{\mu_{z}})^{2} + (P_{\nu_{\mu,E}} - P_{\mu_{E}})^{2}|$$
(38)

 Q^2 is reported in units of $(MeV/c)^2$.

The |t| corresponds to the four-momentum transfer from the neutrino, muon, and pion to the nucleus, and is calculated using the equation:

$$|t| = |(Q - P_{\pi})^{2}| = |(P_{\nu_{\mu}} - P_{\mu} - P_{\pi})^{2}| \tag{39}$$

This equation is the four-momentum notational form. The code follows the equation below in order to compute |t|:

$$|t| = |(P_{\nu_{\mu,x}} - P_{\mu_x} - P_{\pi_x})^2 + (P_{\nu_{\mu,y}} - P_{\mu_y} - P_{\pi_y})^2 + (P_{\nu_{\mu,z}} - P_{\mu_z} - P_{\pi_z})^2 + (P_{\nu_{\mu,E}} - P_{\mu_E} - P_{\pi_E})^2|$$
(40)

|t| is reported in units of $(MeV/c)^2$.

A.12 NMCombinedPlots.C

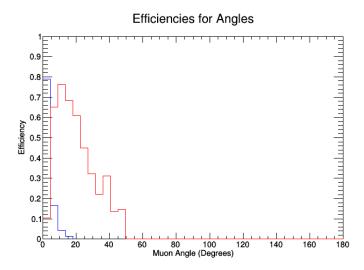


Figure 69:

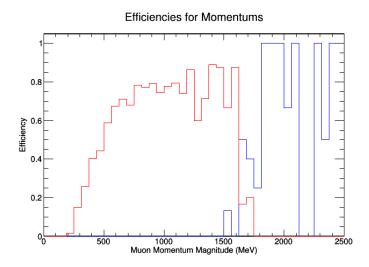


Figure 70:

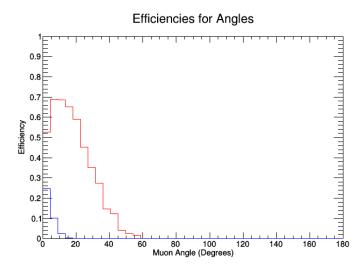


Figure 71:

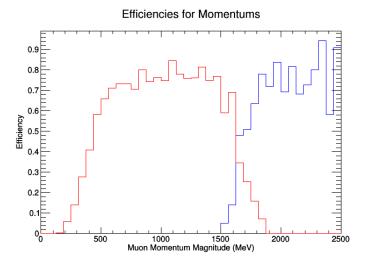


Figure 72:

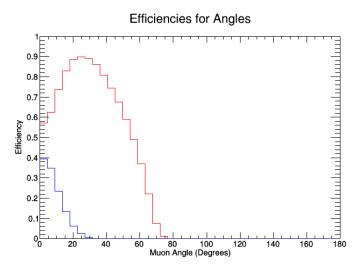


Figure 73:

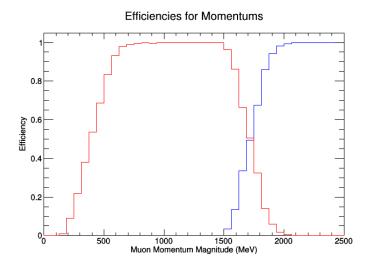


Figure 74:

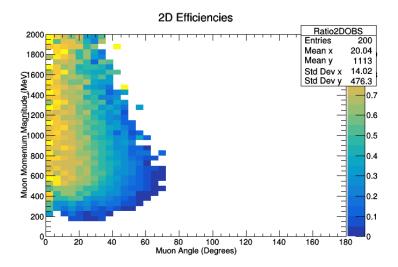


Figure 75:

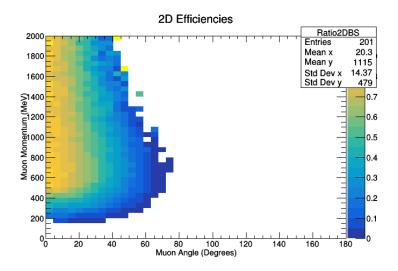


Figure 76:

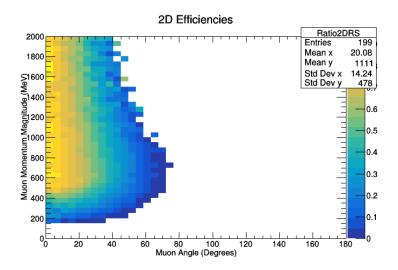


Figure 77:

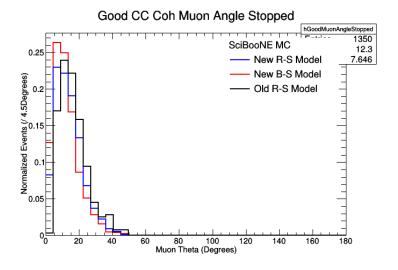


Figure 78:

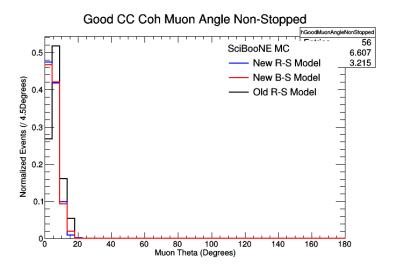


Figure 79:

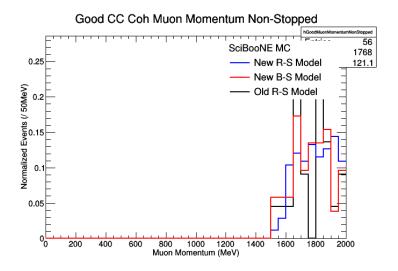


Figure 80:

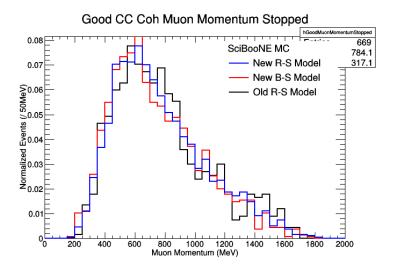


Figure 81:

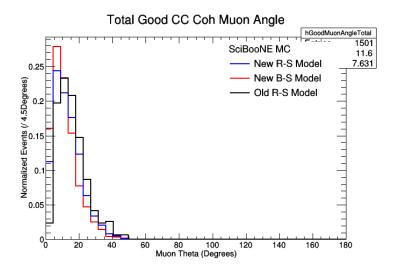


Figure 82:

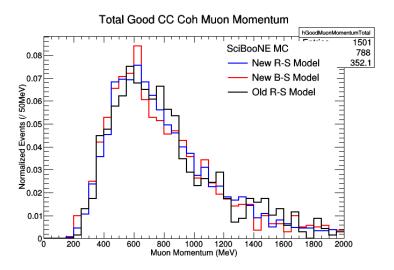


Figure 83:

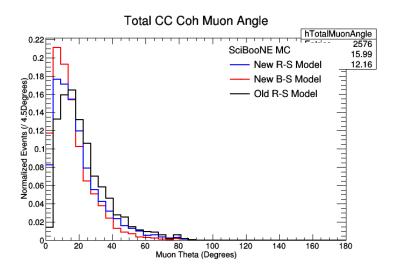


Figure 84:

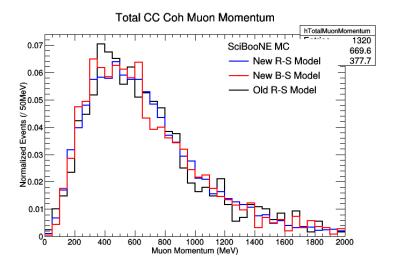


Figure 85:

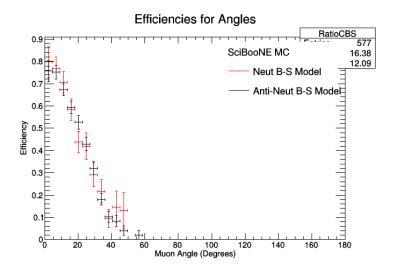


Figure 86:

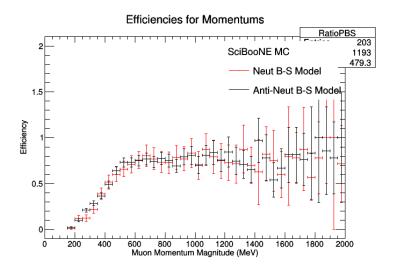


Figure 87:

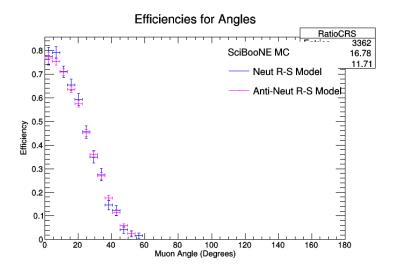


Figure 88:

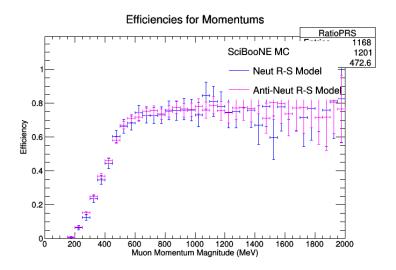


Figure 89:

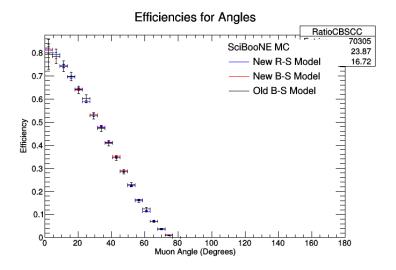


Figure 90:

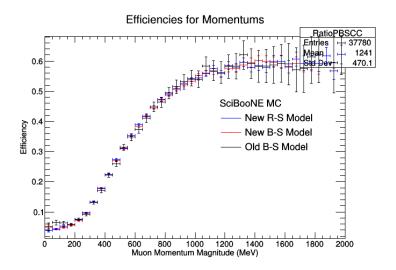


Figure 91:

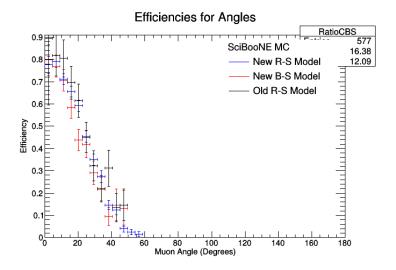


Figure 92:

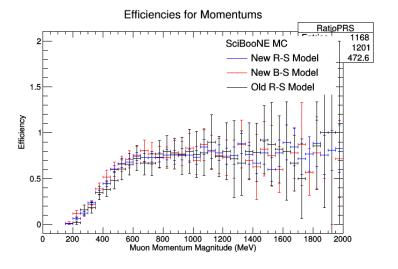


Figure 93:

A.13 NMPionPlotting.C

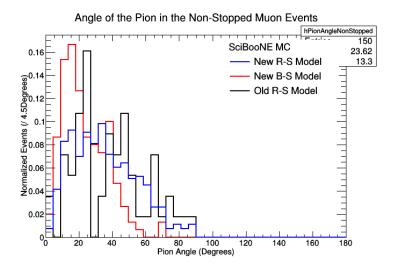


Figure 94:

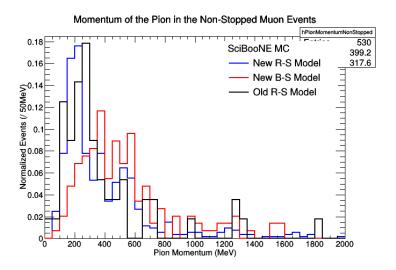


Figure 95:

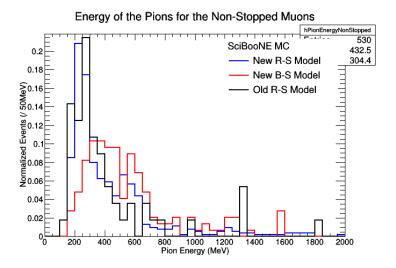


Figure 96:

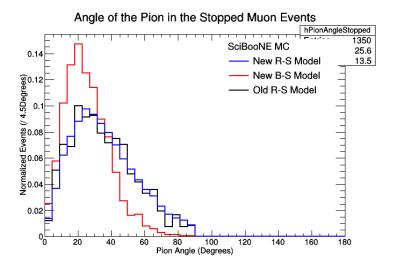


Figure 97:

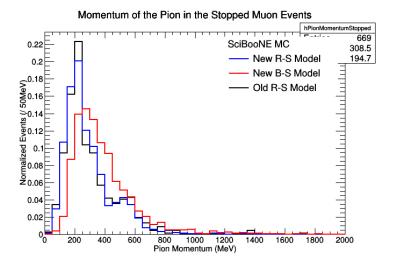


Figure 98:

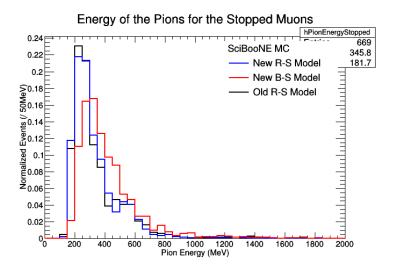


Figure 99:

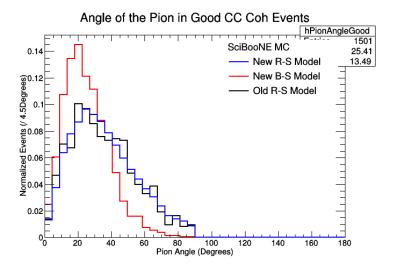


Figure 100:

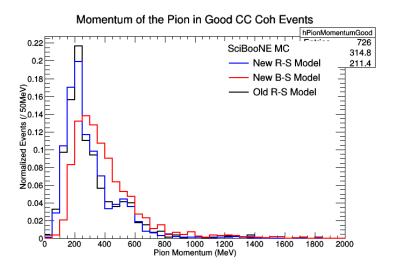


Figure 101:

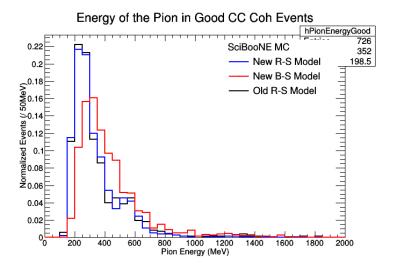


Figure 102:

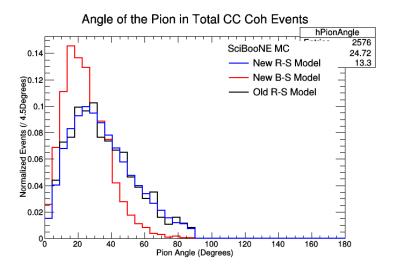


Figure 103:

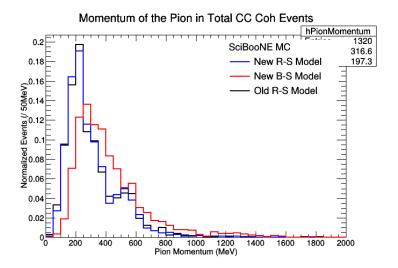


Figure 104:

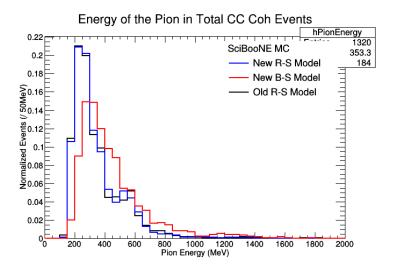


Figure 105:

A.14 NMFourSquaredPlotting.C

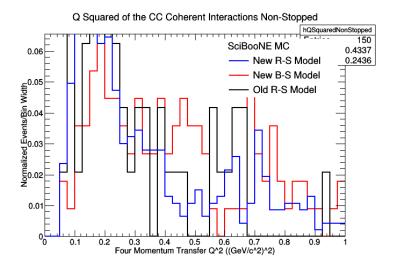


Figure 106:

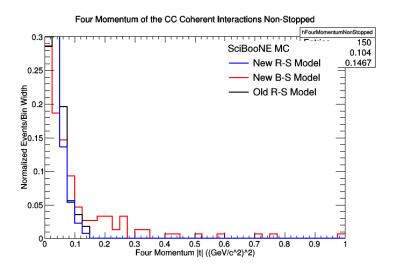


Figure 107:

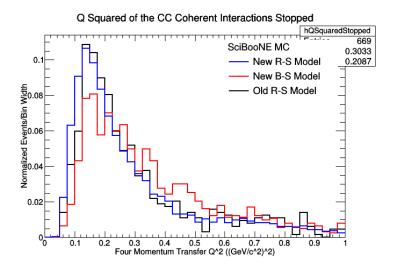


Figure 108:

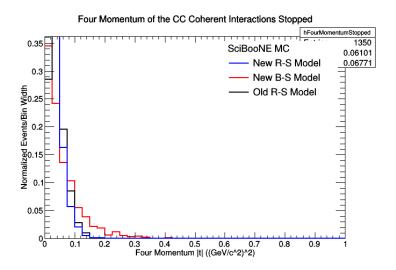


Figure 109:

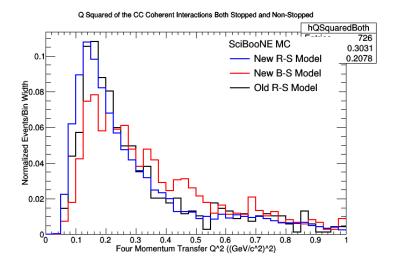


Figure 110:

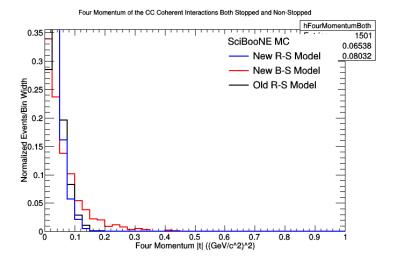


Figure 111:

A.15 ANMCombinedPlots.C

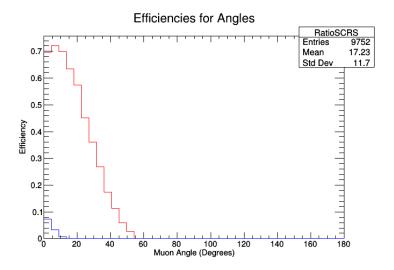


Figure 112:

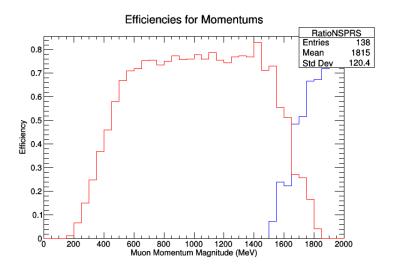


Figure 113:

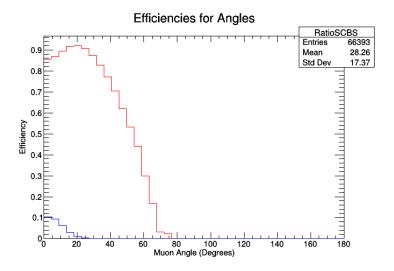


Figure 114:

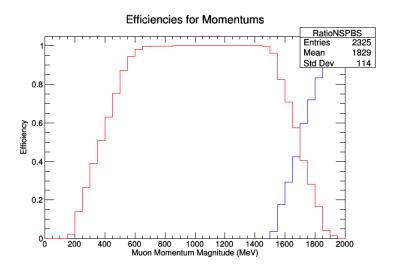


Figure 115:

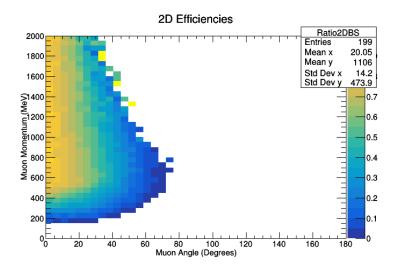


Figure 116:

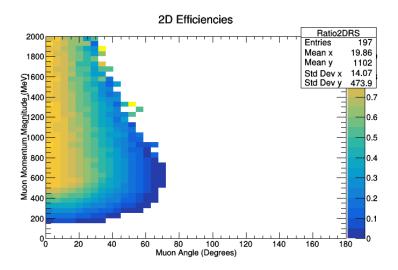


Figure 117:

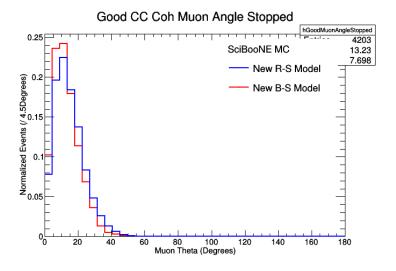


Figure 118:

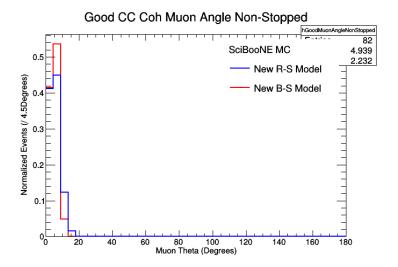


Figure 119:

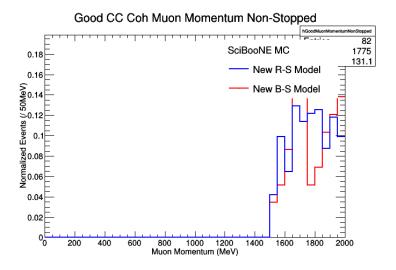


Figure 120:

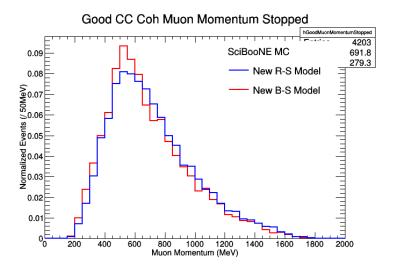


Figure 121:

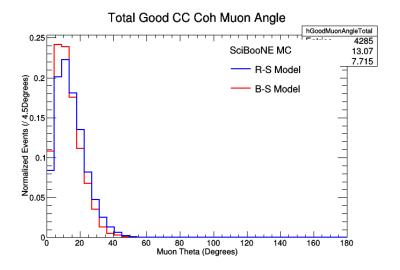


Figure 122:

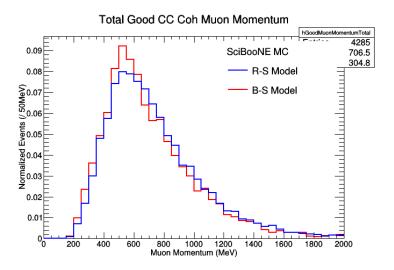


Figure 123:

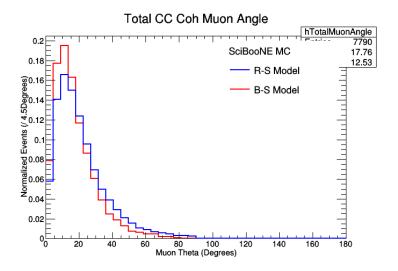


Figure 124:

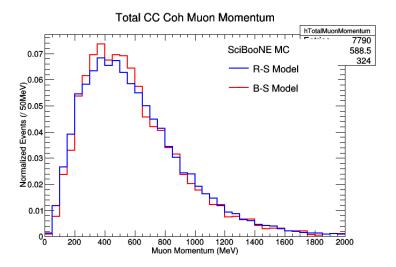


Figure 125:

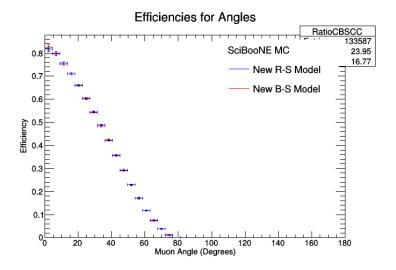


Figure 126:

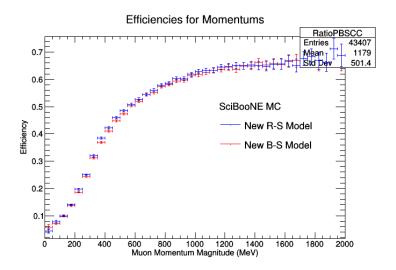


Figure 127:

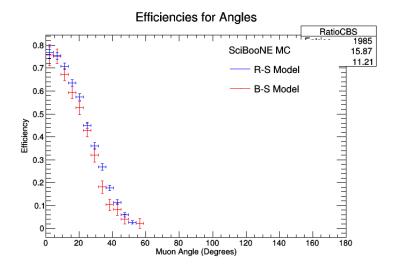


Figure 128:

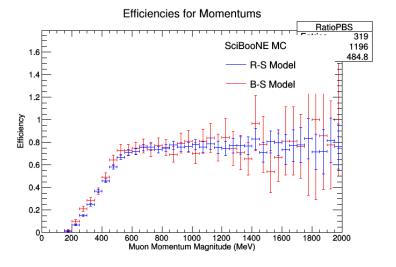


Figure 129:

A.16 ANMPionPlotting.C

I need to come back and insert all of my images here.

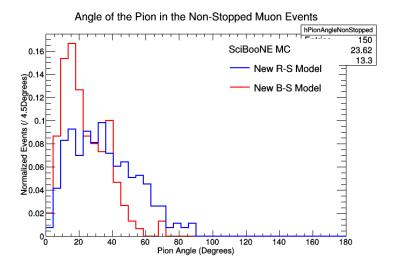


Figure 130:

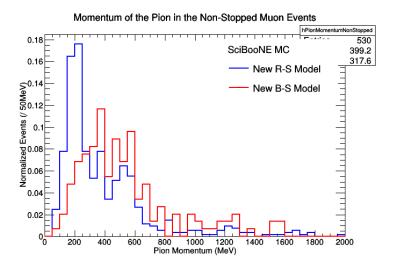


Figure 131:

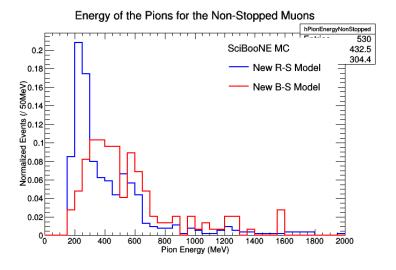


Figure 132:

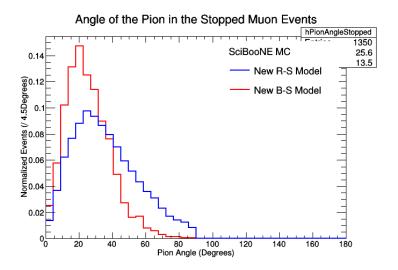


Figure 133:

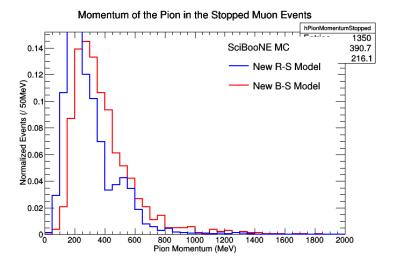


Figure 134:

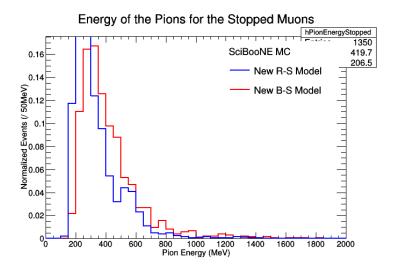


Figure 135:

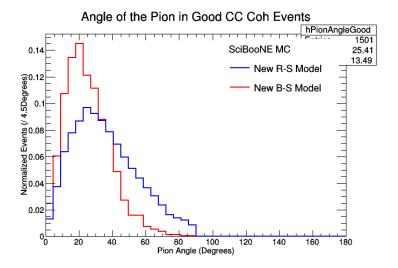


Figure 136:

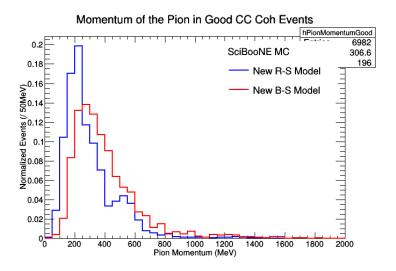


Figure 137:

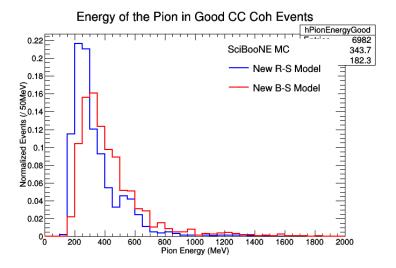


Figure 138:

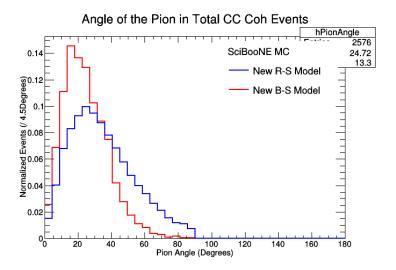


Figure 139:

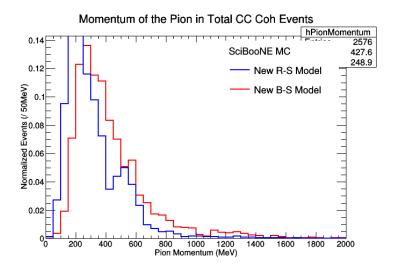


Figure 140:

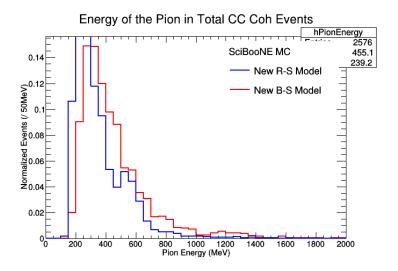


Figure 141:

A.17 ANMFourSquaredPlotting.C

I need to come back and insert all of my images here.

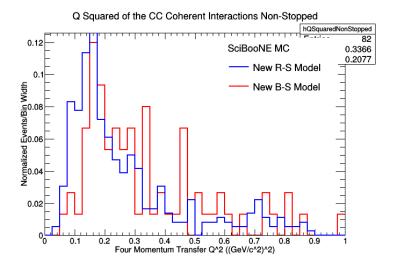


Figure 142:

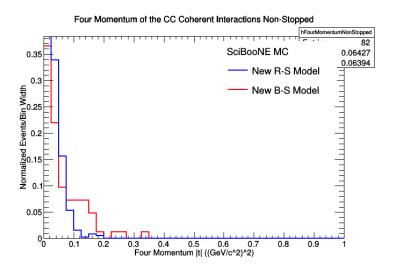


Figure 143:

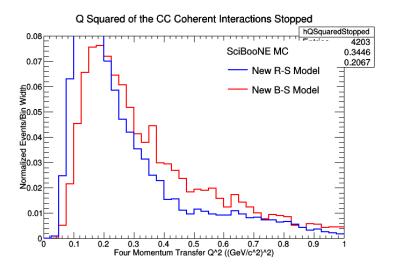


Figure 144:

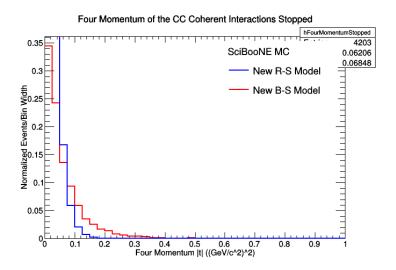


Figure 145:

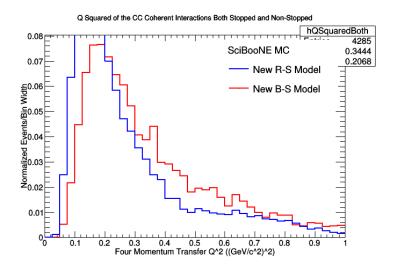


Figure 146:

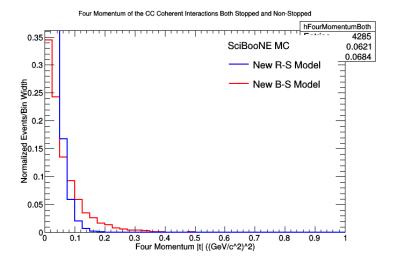


Figure 147:

B Steps for Running the Code

The instructions on how to run the code and the order the files need to run in so that there are no resulting error messages, or other issues while running the code, are detailed in this section.

- Step 1: This is the first step. (Run the NewNM macros and the NewANM macros and the OldNM macro.)
- Step 2: This is the second step. (Run the combined plotting macros.)
- Step 3: This is the third step. (Run the Pion Plotting macros.)
- Step 4: Etc. (Run the FourSquaredMomentum macros.)

C Closing Remarks and Cautions

These are just a few cautionary suggestions for potential issues that might be encountered while trying to use this code. This will also be where and further closing remarks can be made.

D Acknowledgements

Thank everyone who helped, and thank everyone who gave their inputs into your acceptance study. YOU NEED TO GIVE A HUGE AND SPECIAL THANKS TO DR. ASAADI RIGHT HERE! (He has been suuuuuuuper patient...)

E Figures and Tables

E.1 List of Figures

There will eventually be a huge list of figures here.

E.2 List of Tables

There will eventually be the event reduction tables and 2D histogram tables here.

| | 930.2000 | 1823529 | 1,713615 | 5625 | 1435185 | 0.4038-46 | 1381932 | 133333 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | | | _ | _ | _ | _ | _ | | | | _ | _ |
|-------------|----------------|----------------------------|--------------------|--|----------|--------------|-----------|-----------------|--|-----------|--------------|-------------|-------------|---------------|----------|--------|--------|---------|-------|------------|----------------|-----------------|----------------|--------------|-----------------|----------------|---------|----------|------------|------------|------|------------------|----------------|--------------|
| | 1990-1950 | 28887 | 1,623,853 | 230165 | 3791632 | 12627 | 17 | 11 | , | | _ | _ | _ | | | | | | | | _ | | | | | | _ | | | | | | | |
| | 30-19III 1 | 0 252.518 | _ | 5955 | 162963 | 33333 | 200323 | 22 | | | - | - | - | | - | | | | | | _ | | = 0 | | - | | - | | | - | = 0 | | | - |
| | 1830-1850 18 | 3.79.75 | _ | - | _ | _ | _ | 982-120 | | | | | | | | 0 | | | | | _ | | = 0 | | | | | 0 | | = 1 | = 0 | | | |
| | 739-1809 180 | 7793 0.8 77494 0.7 | _ | - | | 0.416667 0.4 | | | 1 | | | | | | 0 | | | | | | | | = 0 | - | | | | | | = 1 | = 0 | - | | |
| | 178 173 | 22.0 502128 | - | _ | _ | 1242901 0.40 | _ | _ | 22 | | | | | | | | | | | | | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 700 1700 | 0.0 | | - | _ | _ | ÷ | 56 82 | _ | | | | | | 0 | | | | | | | - | = 0 | - | | | | | - | = 1 | = 0 | | - | |
| | 50 1630-1700 | 0.921569 | | 3 05454 | | | = | 3 0.238056 | 9 6 | | | | | | | | | | | | | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 1600-1650 | - | 0.704835 | - | - | | | 0.1272 | | | | | | | | | 0 | | | | | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 1539-1600 | 0.0 | 52552 | 0 0 | | = | | 0.191489 | | | | | | | | | 0 | | | 0 | _ | | = 0 | | | | | | | = : | = 0 | | | |
| | 1300 1350 | 1 | 0.727468 | 3664 | 9911120 | _ | _ | 0.486556 | | | | | | | | | | | | | | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 1450-1500 | 215622.0 | 0.7169-46 | 0.585284 | 0.497836 | 0.384615 | 0.335191 | 8.25 | 0.0350 | 10 | | | | | | П | | В | | | _ | | = 0 | | | | | В | | = 1 | = 0 | | | |
| gal | 1400-1-50 | 98620 | 0.72093 | 92820 | 0.500901 | 0.488953 | | 0.261194 | 1 1 3 47 | | | | | В | | В | | | | | | | = 0 | | | В | | | | | = 0 | | | |
| éhi | 1330-14III | 82248 | 721683 | 1961190 | 1566828 | 389868 | 307116 | 1182432 | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | | | _ | _ | _ | _ | _ | | | | _ | _ |
| l-Kem-Sehga | 1310 1350 | 811321 | 735724 | 20d138 | 589935 | 785387 | 371868 | 283609 | 1012101 | 7 | | | | | | _ | | | | | _ | | | | | | _ | | | | | | | _ |
| Æ | 230-1300 1 | 80128 | _ | _ | 168274 | _ | 0 Stut. | 33333 | | 0.1-2837 | | | | | | | | | | | _ | | = 0 | | - | _ | _ | _ | | - | = 0 | | | - |
| _ | E | 39.774 0.7 | | 0 0 | 50962 07 | 0.463785 0.4 | | | 23027 | - | 95 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | _ | | = 0 | | | | | | | = 1 | = 0 | 0.0 | | |
| New NM | | 8302712 0.8 830275 0.7 | - | _ | _ | _ | 36111 0.3 | 316279 0.293333 | 534 | 0.07070 | 0.1 | 0 | 0 | | 0 | | | | | | | | = 0 | - | | | | | | = 1 | = 0 | - | | |
| ew | Е | 8875 0.76 80875 0.82 | | _ | _ | 1481938 0.44 | | | | | | 0 | 0 | | | | 0 | | | 0 | _ | - | = = | - | | | | | | = 1 | = 0 | | | |
| Z | ㄸ | - | _ | - | _ | Ť | 9 | 18 0.52837 | 100 | 92 | 1970 | | | | | | | | | | | | = 0 | - | - | | | | | = 1 | = 0 | | - | |
| tor | 1030-1100 | 12 0.852174 12 0.828974 | - | 0.0 | | | _ | 1 0336748 | | | 129 83 | | | | | | | | | | | | = 0 | | | | | | - | = 1 | = 0 | | - | |
| am | 10001 | 0.803922 | - | - | | Ť | Ť | - | 0.14523 | = | 15 0.4571429 | _ | 0.13636 | | 0 | | 0 | | | | | | = 0 | | | | | | | = 1 | = 0 | | | |
| <u>2</u> | 920-1000 | 0.29823 | _ | 0.656648 | - | _ | _ | 0362308 | - | _ | 0.0814815 | 1 0.0465465 | | | | | | | | | | - | = 0 | | | | | | | - | = 0 | | | |
| Histogram | 000 930 | 0.809981 | 0.763083 | 0.6236 | _ | _ | 0.439182 | 0.3775Ki | - | | | 0.08-0.121 | 0.02-8902 | _ | | | | | | | _ | | = 0 | | | | | | | = : | = 0 | | . = | |
| Ξ | 850-900 | 0.83884 | 0.7840.08 | 2812490 | 0.58894 | 0.532462 | 0.455387 | 0.378892 | | 017740 | | | | 58.0 | | | | | | | _ | | = 0 | | | | | | | - | = 0 | | . = | _ |
| 7 | 800-850 | 9/2962'0 | 7067.0 | 0.661-496 | 0.601285 | 0.542536 | 0.465472 | 0.404237 | 0.252880 | 0.207 | 0.12807 | 0.074184 | 0.0347222 | 0.0131579 | В | | | | | | _ | | = 0 | | | | _ | | | = 1 | = 0 | | . = | |
| tor : | 220-830 | 280 | 0.757746 | 0.6764 | 0.617109 | 0.5-6332 | 0.486242 | 0.416728 | 28370 | 0.153930 | 0.133188 | 0.0654045 | 0.046586 | 0.0121212 | | В | | | | | | | | | | В | | | | | = 0 | | | |
| ble 1 | 310-730 | 773438 828302 | 277896 | 67315 | 61255 | 1537204 | 21223 | AZIBIB | 2755 | 188606 | 133764 | 88-5225 | 0724638 | 0.0234114 | 00546541 | | | | | | | | | | | | | | | | | | | |
| Lac | 02.0 | 846455 | 786013 | 20109 | 628604 | 535199 | | 410602 | _ | _ | 12822 | 083686 | 0.44898 0 | 0.020135 0 | _ | | | _ | _ | _ | _ | | | | | _ | _ | _ | | | | | | |
| | 39 029 001 | 84186 0. | | 681216 | 923967 | 57336 | E 12 | 4 B | 0 0 | 1812 | - | _ | | 0173-0 | 0 | | 0 | 0 | 0 | 0 | _ | | = 0 | | | | - | | | = 1 | = 0 | | | - |
| | 9 | 8 0 219682*0 | | 9 = | | | _ | | | _ | = | _ | _ | 0.0121873 0.0 | | | 0 | | | | _ | | = 0 | - | | | _ | | | = 1 | = 0 | 0.0 | | |
| able | 320 320 | 816092 0.8 824047 0.7 | 787 | 200 | 931 0.6 | 629 | 263 | 27 83 | 1634 0 2 | 2696 | 9863 0.1 | 4586 0.0 | EG06081 0.0 | | | | 0 | | | 0 | _ | | = 0 | | - | | | | | = 1 | = 0 | | | |
| | Ë | 8.8 | - | | - | _ | _ | | - 1 | | _ | _ | _ | 10228571 0.00 | | | | | | | _ | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 450-300 | 00 | 0.693122 | - | | | _ | 8 032670 | 0.0010 | | 9 0.105105 | B 0.035778 | 90810 0 92 | 0.0023 | | | 0 | | | 0 | _ | - | = 0 | | | | | | - | = 1 | = 0 | | = | |
| | 400-450 | 0553846 | - | 0.49825 | 0.44342 | 038159 | 0.32288 | 027265 | 017770 | 0.12370 | 0.0810889 | 2 0.0418139 | 0.00645756 | | | | | | | | _ | | = 0 | | | | | | | = 1 | = 0 | | | |
| | 350-400 | 16296170 | 0.479167 | 0.4604152 | 0.356223 | 0.328982 | 0.260465 | 0.228974 | 010000 | | 0.045331 | 0.0165922 | | В | | В | В | В | | В | _ | - | = 0 | | | В | | | | - | = 0 | | | |
| | 310.350 | 202120 | 0.334426 | 0.330233 | 0.284783 | 0.240517 | 0.215553 | 0.167825 | 9819800 | 0.0355327 | 0.0248-49-4 | | | | | | В | В | | | _ | | = 0 | | | | _ | | | = : | = 0 | | . = | |
| | 250.310 | 0.248182 | 131 | 0.230374 | 0.20088 | 0.1-6399 | 0.138368 | 0.1043-0 | 0.0451908 | 0.0115123 | | | | В | | В | | | | | | | = 0 | | | В | | | | | = 0 | | | |
| | 200.230 | 125923 | 150948 | 13-613 | 1120614 | 0.0852575 | 0.047748 | 0037579 | 100241035 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | | | | _ | _ | _ | | | | | | _ |
| | 150 200 | 123457 | 1289374 0269374 | 189682 | _ | | 7581900 | | | | _ | _ | _ | | _ | | | _ | _ | _ | _ | | | | _ | | _ | _ | | | | | | _ |
| | 108-130 13 | 70 | 20 | 32 | 2 | 2 | 2 | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | - | - | - | | | | | | = 1 | = 0 | 0.0 | | |
| | 59 100 10 | 0 0 | _ | | | 0 | - | | | | 0 | 0 | 0 | - | 0 | - | 0 | 0 | 0 | 0 | 0 | | 20 | | | - | 0 | 0 | | - | 20 | | | |
| | a/Natv (E-0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | New NM R.S. B. | 0 Sag | Dog | Down or other transfer or othe | Dog B | 1 Dog 1 | 1 Dog 1 | Dog D | Down or other transfer or othe | (Day | Dog 0 | Dog 0 | Dog 0 | B Zhor : | Dog B | B Zuci | Dog B | 1 Deg B | Dog B | 1 Deg 1 | 99-103.5 Day 0 | 103 5 108 Deg 0 | 19 5 117 Day 0 | 17.121.5 Dev | 121 5 125 Day 0 | 126-1305 Day 0 | To Deg. | 95 Deg B | 3514 Deg 0 | Maries Deg | 1000 | 127 5 4 67 Day 0 | R2 1665 Dev II | 185547 Deg 8 |
| | NewN | 0.45 Deg 45 9 Deg | 9-135 Day | 18.22.5 Do | 225.27 | 27-31 5 Day | 315.31 | 36-40 5 Dry | 200.5 | 495.54 | 25,53 | 585-65 | 63.67.5 | 675.72 | 23.83 | 765.81 | 81.855 | 855.91 | 98.94 | 945.99 Deg | 99-103 | 1855 | 119 21 | 117.12 | 121 5-1 | 126-13 | 1315.1 | 135-13 | 75 E | 1 | 7 | 2 2 | 162.16 | 166.5.1 |

| | 550-300 | 7,54521 | 0.083030 | CE200 | 0.555 | 0.20625 | 0.181818 | | | | | | | | | _ | _ | _ | | | | | | _ | _ | _ | | | | | | |
|----------------------------|---------------------|-----------------------|--------------------------|------------|------------|--------------|-----------|-------------|--------------|-------------|-------------|------------------|---------------|-------------|------------|-------------|------------|-------------|------------|--------------|---------------|--------|--------------|----------|---------------|---------|----------|-------------------|---------|---------------|---------|---------|
| | 1900-1950 | 201008 | 745763 | - | _ | 1,285714 | _ | _ | | | | | | | | | | | | | | | | | Ī | _ | | | | | | |
| | 0061028 | 734872 0.78105 0. | 0.0338 | - | Ť | 929 | 299 | _ | _ | | = 0 | | | | | | | | _ | _ | 0 0 | | | | _ | _ | | | 0 0 | | 0 0 | |
| | 1800-1850 185 | 0 0 | 201807 | - | - | .402-439 0.3 | - | Ť | - | - | | | | - | | - | | | - | - | - | | | - | _ | _ | - | - 1 | | | - | 0.0 |
| | Н | 0 0 | - | | - | | | Ť | - | - | | | | | | - | | | - | - | 0 0 | | | - | _ | _ | - | = : | | | 0 0 | |
| | 0081-02/1 02/ | | 0.6867 | - | - | | | 700001.0 71 | - | - | = 0 | | | | | | | | | | | | | - | _ | _ | - | = : | | | | |
| | 1700.1 | 0 0 | 0.70381 | | 0.436081 | _ | 0.28574 | | _ | | | | | | | _ | | | _ | _ | | | | _ | _ | _ | | = : | | | | |
| | 1620-1730 | 1,720657 | 0.74740 | 11564017 | 0.4475 | 0.33333 | 0.214286 | 0.0388235 | _ | - | | | | | | | | | | | | | | | _ | _ | - | | | | | |
| | 1600-163 | 0.77560 | 0.664251 | 0.538375 | 0.535354 | 0.3622-55 | 0.181818 | _ | 2 | - | | | | | | | | | | | | | | _ | _ | _ | - | | | | | |
| | 1550,1600 | 1275742 171174 | 0.77.78.33 | 0.587135 | 6.5 | 0.416567 | 118@4F | 0.0526316 | 0,333333 | | | | | | | | | | | | | | | | | | | | | | | |
| | 1500-1530 | 0.793631 | 1708240 | 1590654 | 14840.8 | 1433735 | 0.2321-69 | 173 | 0.0714286 | | | | | _ | _ | _ | _ | _ | _ | _ | | | _ | _ | _ | _ | | _ | | _ | | |
| | 1-50-1500 | - | 6892 | | ÷ | 3121 | _ | 325 | 0.25 | | | | | | | | _ | _ | _ | _ | | | | | _ | _ | | | | | | |
| gal | 1 021100 | - | 25835 | _ | - | - | 348624 0. | _ | 0.136364 0. | - | = 0 | | | | | | | | _ | _ | 0 0 | - | | | _ | _ | | | 0 0 | | 0 0 | |
| ehg | 1350 1400 140 | 0.0 | 0.728296 | - | - | 453169 0.4 | | | 0.166667 0.1 | - | 0.0 | | | | - | - | - | - | - | - | 0.0 | | | - | - | _ | - | | | | 0 0 | |
| Š | н | 0 0 | | - | - | - | | _ | 0.16 | - | | | | | | - | | | | - | 0 0 | | | - | _ | _ | - | | | | 0 0 | |
| g. | 30 130 130 | 0.0 | 10.718861 | | Ť | 26 0.431408 | - | Ť | - | - E | = = | | - | | - | - | | | - | _ | | - | - | - | _ | _ | - | = : | | | | |
| New NM-Berger-Sehgal | 50 1230 1300 | 0 0 | 0.730,759 | | - | 0.425456 | | ÷ | _ | 0.0909091 | | | | | | | | | | | | | | | _ | _ | | = : | | | | |
| M-1 | 1200-1250 | 0.75427.0 | 7,000,00 | 0,615.16 | 0.535057 | 0.474730 | 130054 | 0.233918 | 0.1620114 | 0.0759231 | | | | | | - | | | - | - | | | | _ | _ | _ | - | - | | | | |
| Ξ | 1130-1300 | 11820268 | 0.717308 | 162074 | 0.528678 | 0.444332 | 0.296117 | 0.214286 | _ | _ | 0.000000 | | | | | | | | | | | | | _ | _ | _ | - | | | | | |
| eW | 1050 1100 1100 1130 | 0.813725 0.804494 | 0.7878 | 0.6-0.326 | 022223 | 0.475631 | 1325411 | 0.272981 | 0.180723 | 0.0869265 | 0.0344828 | | | | | | | | | | | | | | | | | | | | | |
| Ž | 1020-1100 | 182-49-45 | 90770 | 0.633392 | 05717780 | 0.490654 | 032232 | 0.26-576 | 0212820 | 0.133838 | tingating | - | James 1 | | | | | | | | | | | | _ | _ | | | | | | |
| for 1 | 0201 9000 | 228-081 | 2000 | 653155 | 571275 | 2012 | 345320 | 29.294 | 236700 | | | CONTRACTOR | | | | | | | | | | | | | | _ | | | | | | |
| Ш | 0.0192 | - | 70384 | 134515 | 822005 | 218223 | 368859 | 313023 0 | 202332 | 151202 | | 100000 | | | | _ | _ | _ | _ | _ | | | | _ | - | - | | | | | | |
| 12: Table for 2D Histogram | 26 026 00 | 0 0 | 70008 0. | 0 | 57BS0 0.3 | 0 1 | 13620-12 | _ | _ | - 1 | 00,000 | - | | | - | - | _ | _ | _ | _ | | | | _ | _ | _ | - | | | | | |
| sto | F | 822223 725448 U.S. | 20 900 | _ | 2 | 521099 0.5 | - | Ť | ÷ | 120744 0.1 | - | _ | | | - | - | | | - | - | 0 0 | | - | - | - | - | - | | | | 0 0 | |
| Hi | 820.900 | 0 0 | 0 0 | | 0 | - | 0 0 | 0 | = | | | | | | - | 0 | | | _ | _ | | | - | _ | _ | _ | - | = 1 | | | | |
| Ω | 0.8008 | 22 | 87 0,75235 07 0,71027 | - | ÷ | _ | 64 139652 | ÷ | - | 58 0.161453 | | | | - 0 | - | | | | | | - | | | | | | - | - | | | - | |
| i, | 220 800 | 0 0 | 0.78087 | 6 6 | <u>-</u> | 0.55257 | | = | <u>-</u> | 0.197558 | 5 0 | i c | ic | 23820 0 03 | | | | | | | | | | | _ | _ | - | - 1 | | | | |
| e fc | 700.730 | 0.814286 | 0.782736 | 0.089404 | 0.637363 | 0.551891 | 0.403834 | 0.330302 | 0.358858 | 0.204505 | 0.120182 | 0.00000 | 0.000000 | - | | | | | | | | | | _ | _ | _ | - | - 1 | | | | |
| gpl | 002-029 | 0.801402 | 0.794269 | 0.677215 | 0.615.445 | 0.054788 | 0.425045 | 782545.0 | 0.359272 | 0.19-403 | 0.130363 | 0.000000 | 0.005000 | DIRECTED IN | | | | | _ | _ | | | | | | | | | | | | |
| Ë | 000-000 | 1880435 | 1801724 | 1687027 | 1620688 | 1564264 | 1419254 | 13-22-23 | 1261486 | 12020 | 20210 | none/on | 0.0195672 | - Constant | | _ | _ | _ | _ | _ | | | _ | _ | _ | _ | | | | _ | | |
| 12: | 009 025 | - | 78254 | 02331 | ÷ | 25-4516 | - | ÷ | ÷ | 18724 | _ | | | | | | _ | _ | _ | _ | | | | | _ | _ | | | | | | |
| ble | 020 030 | - | 78689 | 0 2020 | 0,58865 | .06522 | 366159 | _ | _ | - | U.Habasa | 0 0 | 1. | | | | | | _ | _ | 0.0 | | | | _ | _ | - | | | | 0 0 | |
| Lab | Ė | - | | - | - | | | ~ | _ | | _ | _ | - | - | | - | | | | | | | - | - | _ | _ | - | - | | | - | |
| Г | 100 | 1,728.77 | 0,500.00 | 0.582547 | 0.521715 | 0.405.40 | 0.327-0 | 0.222-053 | 0.21234 | 0.1-18533 | _ | - | | | | | | | | | | | | | _ | _ | - | | | | | |
| | 400-50 | 0.615385 | 0.5725 | 0.517113 | 0.45548 | 0.355361 | 0.275212 | 0.22483 | 0.181.67 | 0.135334 | 0.081000 | 0.000000 | 0.007000 | | | | | | | | | | | | _ | _ | | | | | | |
| | 330-400 | 0.45264 | 0.462343 | 0.415013 | 0.381265 | 0212166 | 023358 | 8022610 | 0.141328 | 0.0978814 | 0.00000000 | one man | | | | | | | | | | | | | _ | _ | | _ | | | | |
| | 300-350 | 20222 | 202263 | 318462 | 221873 | 29 | 170164 | 129627 | 0.40285 | 0.0531873 | - 5 | | | | | | | | | | | | | | | _ | | | | | | |
| | 300 | 0 0 | 0 0 | | | - | 5 6 | - | Ť | | = 0 | | | | | | | | _ | _ | 0.0 | | - | | - | _ | - | = 1 | | | 0 0 | |
| | 250-310 | - | 0.22322 | _ | _ | | 0.081796 | _ | _ | 0.011.021 | | | | | | - | - | | - | - | 0 0 | | | - | _ | _ | - | - | | | 0 0 | |
| | 300.250 | 0.157895 0.176471 | 013676 | 0.0973451 | 0.0930736 | 0.0857143 | | 0.0139147 | 0.00251467 | | = 0 | | | | | | | | | | | | | _ | _ | _ | | - 1 | | | | |
| | 150.300 | 0.0625 | 50007 | 0.020004 | 0.0354035 | 0.00485618 | 1000000 | _ | _ | | | | | | | _ | _ | _ | _ | _ | | | | _ | _ | _ | | | | _ | | |
| | 021-001 | | | | _ | | | _ | _ | | | | | | | _ | _ | _ | _ | _ | | | | _ | _ | _ | | | | | | |
| | 00700 | | | | | | | _ | - | | | | | | | | | | | | | | | | _ | _ | | - | | | | |
| | OLEO Mery is | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | S-RIVINA | No. | 9-135 Deg | 8 22.5 Day | 225-27 Dag | 7-31.5 Day | 10-30 Day | 40.5-45 Dag | 15-40-5 Dag | 192 54 Day | 04-08-0 LPg | None of the last | 120 C 120 Day | | 765.81 Day | 81-85.5 Day | 825.00 Day | 98-94.5 Day | 945.09 Deg | 99-103.5 Deg | 103 5 108 Day | MZ Day | 17.121.5 Day | -126 Day | 126-130.5 Day | 135 Day | 20 0 Deg | Mary Part Control | 100 Day | 123 157.5 Day | 162 Day | Tag Day |
| | New. | 0.45 Day 4.59 Day | 9-13 | 18 22 | 22.5 | 27.3 | 36.40 | 40.5 | 45.4 | 49.0 | 1000 | - Constant | 0.00 | 100 | 100 | 81.85 | 80.00 | 98.98 | 945 | 99.11 | 18. | 119.5 | 171 | 121.5 | 135.1 | 130.2 | 9 | 7 | 1 1 | 100 | 197 | 100.5 |

| | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | | _ | _ | _ | _ | _ | _ | _ | | _ |
|-------------------------------------|-------------------|---|----------|---|-------------|-----------|-----------|----------|--|-------------|-------------|------------|-----------|------------|-------|---------|--------|---------|----------|-----------|--------------|---------------|---------------|---------------|------------|---------------|---------------|---------------|------------|---------------|-----------|---------------|
| | 1959 2000 | 18 | .78333 | 1,000 | 0.33333 | 19 | 17 | _ | | _ | _ | | _ | | _ | | | | _ | _ | _ | | | | _ | _ | _ | | | _ | | |
| | 1990-1990 | | _ | _ | | _ | _ | - | | _ | _ | _ | _ | _ | | | | | _ | _ | _ | = 0 | | | _ | _ | | | | | - | - |
| | Н | | | | | | 9.69 | | | - | | = | = | = | - | - | = | | - | _ | | = 0 | | | | _ | | - | | - | = = | |
| | 1859 1999 | | | | 14 | | | | | - | | = | = | = | | | - | | | _ | | = 0 | | | | _ | | | | | | |
| | 1800-1850 | 0.857143 | 0.958333 | 0.625 | 0.615385 | 0373 | 7999810 | | | | | | _ | | | | . = | | | | | = 0 | | | | | | | | | | |
| | 1750-1800 | 923077 | 820087 | - Carrier | 0.647059 | 333333 | 22222 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1708-1758 17 | | _ | | | | _ | | | | В | _ | | _ | 0.0 | 0.0 | 0 00 | | | | | = 0 | 0.0 | | | | ш с | 0.0 | | B 1 | 2 0 | 0.00 |
| | н | | | | | | | | | | | = | | = | _ | | | | | | | = 0 | | | | | | | - | | = = | |
| | 16301700 | | | | | | | | | | | = | | = | | | | | | | | = 0 | | | | | | | | | | |
| | 1638-1658 | 999999 | 0.563333 | 0.612245 | 144444 | 0.384615 | 0.35294 | 2 | ·? = | | | | | | | | | | | В | В | = 0 | | | В | В | | | | | | |
| | 1550-1600 | 15 18 | 1914651 | 923846 | 97.0 | 7 | 23333 | 233333 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1588-1558 1 | | 0.68889 | | | | | | | | | | | | | | | | _ | _ | | = 0 | | | | _ | | | | - | = 0 | |
| | Н | | = | _ | - | _ | _ | _ | | 0 | - | | | - | | | - | | | | | = 0 | | | | | - | | | | = = | |
| _ | Н | 8 | _ | _ | | | | | - | | | - | | - | | | | | | | | = 0 | | | | | | | | | | |
| ga | 1400-1450 | 1872 | 78199°0 | 890 | 0568966 | 0.44444 | 77 | 1134 | 0.23.23.33 | | | _ | | _ | | | | | | _ | В | = 0 | | | | _ | | | | | | |
| Old NM-Rein-Sehgal | 1358-1468 | 0.77.778 1 0.55 0.75 1 0.6 0.83333 0.80.700 0.815789 0.8 0.74559 0.861111 0.923077 0.825 | 78897 | 694444 | 413793 | FLT81-1 | 1238195 | 7 | 27 27 28 29 20 20 20 20 20 20 20 20 20 20 20 20 20 | _ | _ | _ | _ | _ | | | | | _ | _ | _ | | | | _ | _ | | | | | | |
| ų. | B-1358 | 72028 | 65059 | 70588 | 78947 | 99200 | 4994 | 144 | 12.5 | | _ | | | | | | | | | _ | | | | | | _ | | | | | | |
| žei. | 1300 13 | 11 | 292 | 288 | 2 2 | 857 0.4 | 837 18.5 | 925 | | | _ | = | _ | = | _ | _ | _ | _ | | | | = 0 | 0.0 | | | | | 0.0 | - | 0 | = = | |
| I-I | Si 1230- | 0.861 | 989 | 9.76 | 925 | 8517 | 1.348 | 1 38 | 3 0.25 | | 0.333 | | | | - | | | | | | | = 0 | | | | | | | | | 00 | |
| \leq | 1398-12 | 1783 | 0.73104 | 0.7053 | 963346 | 0.40659 | 0.43636 | 0.2857 | 0.357148 | | | | = | | | | | | | | | = 0 | | | | | | | | | | |
| р | 1158-1200 | F 8 | 0.683544 | 62988970 | 88193 | 9.465116 | 0.376812 | 72227 | 0.28833 | | | | | | | | | | | | | | | | | | | | | | | |
| $\overline{0}$ | 00-1150 | 915789 | 25336 | 75557 | 33817 | 221008 | 84545 | 2878 | 0.207802 | 142857 | | | | | | | | | | _ | | | | | | _ | | | | | | |
| for (| 1188 11 | - <u></u> | 1884 | 9889 | 1837 | | 6069 | 98-2 | | | | | | | | | | | - | _ | | = 0 | | | | _ | | - | - | | = 0 | |
| Table 13: Table for 2D Histogram fo | 50 1050 | 0.77.778 77 0.80.7002 | 13 853 | 3890 | 200 | 14 1977 | | | 12121 | 18 | | = | | = | - | | - | | | | | = 0 | | | | | | | | | = = | |
| raı | 1000-1 | 9980 | 0.7472 | 0.706 | 1 05258 | 0531034 | = | | 0.14651 | 2 0.0714285 | E E | | | | | | | | | | | = 0 | | | | _ | | | | | | |
| 8 | 950 100 | 0.70923 | 0.78087 | 0.75509 | 0.65405 | 0.49359 | | 0.360825 | 0.257376 | 0.12903 | 0.35714 | 172 | | = | | | | | | | | = 0 | | | | | | | | | | |
| list | 900-920 | 1.792453 | 0.746988 | 0.78115 | 0.614213 | 0.513228 | 42 | 0.407407 | 0.29661 | 0.23636 | В | | | _ | | | | | В | В | В | = 0 | | | В | В | | | | | | |
| Ξ (| 98.98 | 28.8809 | 863979 | 75365 | 593458 | 524887 | 474654 | 394237 | 259259 | 122807 | 6251511 | 0416667 | | | | | | | | | | | | | | | | | | | | |
| 2Γ | 8.20 83 | 16861 | 14681 | 11656 | 1941 | 592437 0 | <u> </u> | | 227423 | | 0.176471.0 | | | 1111 | | 0 0 | | | | _ | | = 0 | 0 0 | | | _ | | 0 0 | | | = = | |
| ŌĽ | 80 80 | 1877 | 200 | 212 | 3574 0.6 | 1861 | ė | œ i | | | 0.13253 0.1 | 2417 | 9992 | 3 | | 0.0 | | | | _ | | = 0 | 0 0 | | | _ | | 0 0 | | | = = | |
| e f | 922 | 87 087 | 89 | 68 | 9 9 9 | 181 | _ | _ | | 80 | 92 0.13 | NS 007 | 988 | = | - | | - | | | | | = 0 | | | | | | | | | = = | |
| gp | 700-75 | 17/20 | 0.7325 | 9.95 | 0.6329 | 0.550781 | _ | - | 0.256534 | | | | = | = | - | | | | | | | = 0 | | | | | | | | | | |
| Ë | 659.70 | 1- sp | 0.73477 | 0.7878 | 0.668224 | 0.544061 | 710191-0 | 0.424749 | 0.340557 | 0.220588 | 0.138728 | 0.03240 | 956900 | 0.02222 | | | | | | _ | | = 0 | | | | _ | | | | | | |
| 33 | 00.630 | 557.43 | 813053 | | 658291 | 522727 | 1540881 | 41195 | 1291545 | 212996 | 0.102991 | 0942408 | 75 | 910989 | | | | | | | | | | | | | | | | | | |
| e 1 | 9 009 | - 80 | 91213 | 5982 | 31818 | 1926 | = | _ | 231003 | 18261 | 102011 | 378592 | 380922 | 9521 | | | | | _ | _ | | | | - | _ | _ | - | | | | | |
| abl | 530 | 0.904782 0.9 | 22.0 250 | 200 | 20 | 192 0.35 | 227 174 | 25 | | 970 | 100 95 | 1638 | 3523 | 20 | _ | | = | | | | | = 0 | | | | | - | | - | | = = | |
| Ë | 500-3 | 999 | 0.765 | 200 | 0.60 | 0.530 | 0.455 | 837 | 2 2 2 | 0.170 | | | | = | | | | | | | | = 0 | | | | | | | | | | |
| | 58 588 | 0.608696 | 0.642857 | 0.630952 | 0.455969 | 0.466981 | 0.354407 | 0.296296 | 0.271875 | 0.133144 | 0.107463 | 0.0555556 | 0.0241379 | 0.003389KB | | | | | | | | = 0 | | | | | | | | | | |
| | 400-450 | 257148 A56667 | 625 | 22162 | 318797 | 390863 | 384230 | 282619 | 256228 | 618091 | (620513 | 1897554 | (H26338 | | | | | | | | | | | | | | | | | | | |
| | 358 4m 4 | 470588 | Ť | 200031 | - | 296296 | _ | | 0.161077 | 0.0816327 0 | _ | 0129032 | | _ | 0 0 | 0 0 | | | | | | = 0 | 0 0 | | | | | 0 0 | | | 0.0 | |
| | H | - | | | | _ | - | | | - | _ | 2 | | = | 0 0 | | | | | | | = 0 | | | | | - | | | | = = | |
| | 310.35 | 0.28571 | - | 0363854 | - | 910 | _ | _ | 5 0.15122 | 6 0.0636364 | 0.023622 | = | = | = | - | = = | - | | | | | = 0 | = = | | | | | = = | - | | | |
| | 230 300 | 2 19 | 0.181818 | 0.290323 | | 0.1375 | 20.0 | 0.133333 | 0.0869565 | 0.0108596 | | = | | = | | | | | | | | = 0 | | | | | | | | | | |
| | 200-250 | 200 | 10769231 | 0.15 | 0.04 | 0.0615385 | 1957561 | 70. | | _ | _ | _ | _ | _ | | | | | _ | _ | _ | | | | _ | _ | | | | | | |
| | 158.20 | | | 8071788 | 29991500 | 0.0217391 | | | | | Ī | | | | | | | | | _ | | | | | | _ | | | | | | |
| | 188-158 158 | | | 2 6 | 8 8 | 80 | 38 | ш ! | | - | | | = | | | - | - | | _ | _ | | = 0 | | | | _ | | - | | 0 | = = | |
| | 30-100 100 | | | _ | 0.0 | | | | | - | | | = | | _ | | - | | - | - | | = 0 | - | | | - | | | | 0 | = = | |
| | B.St. MeV/c St. | | | | 0.00 | 0 | | | | | | | | | | | | | | _ | | = 0 | | | | _ | | | | | | 0.00 |
| | П | | | - | | | | - | | - | | = | = | = | - | = = | - | | | - | | = c | | | | | 0 C | | | | | |
| | HAMRS | 45 Deg | 43.5 Deg | 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 22.5.27 Day | 315 Day | S. B. Dag | 405 Day | 48.56 Lbg | 5-54 Deg | 54585 Dyg | No Section | 201 S79- | 2 72 Ling | 40.00 | 855 Per | Sel De | 945 Dec | 5.90 Day | 110 5 Drg | IR 5-108 Deg | 118-112-5 Deg | 117-121 5 Dev | 121 5 126 Drg | 9-130.5 Dt | 130 5-135 Deg | 135-139 5 Deg | 141 148 5 Dev | 3.5.453 De | 133-157.5 Day | 75 lb2 D. | 166 5-171 Day |
| | 6 | 14 | 3. | 27.5 | 2 2 | 12.71 | 31 | 36 | 7 4 | 8 | 70 | 00 | ŝ | 29 | P. I | 9.5 | 06 | 8 | 94 | 99 | 18 | 11 2 | 1 2 | 12 | 123 | 22 | 21.5 | 1 1 | : 1 | 2 | 2 2 | e e |

| | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | _ |
|--|---------------------|-------------------------------|------------|-------------|--|------------|--------------|--------------|------------|-------------|------------|--|-----------|------------|-------------|------------|------------|--------------|---------------|--------------|-------------|--------------|--------------|-------------|--------------|---------------|-----------|--------------|---------------|--------------|--------------------------|
| | 930-30B | 1812155 1812155 1812155 | 635714 | 21899 | 22142 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1900-1950 | 7,025 | _ | _ | 0.45 0.45 | _ | | | Ī | | | | | | | | | | _ | | | | Ī | | | | | Ī | | | |
| | Н | .53891 .08852 | | 1322523 | | | 0.0 | 0 0 | | В. | = 0 | | 0 00 | | | = 0 | | | | = 0 | | 0 00 | _ | 0 1 | = 0 | 0 0 | | _ | | 0.00 | |
| | ы | 000 | - | - | - | _ | 000 | - | | | = 0 | | | | | = 0 | | | | = 0 | | | | = 1 | = 0 | | 0.00 | | 00 | | |
| | | | = | 0.569231 | | 9.0 | - | - | | | = 0 | - | | | | = 0 | - | | | = 0 | - | | | = 1 | = 0 | 0 0 | 0 0 | | | | |
| | H | 0.78523 | - | _ | | _ | _ | | | | = 0 | | | | | = 0 | | | | = 0 | | | | = 1 | = 0 | | | | | | |
| | ш | 2000 E | 0.681818 | - | 125874 | _ | | | | | = 0 | | | | | = 0 | | | | = 0 | | | | - | = 0 | | | | | | |
| | 1650-1700 | 5334 | 0.628592 | 0.509091 | 134837 | 053333 | 2. | | | | = 0 | | | В | | = 0 | | | | = 0 | | | | - | = 0 | | | | | | |
| | 1600 1650 | 0.792-0-4 | 18/2/91 | 0.533875 | 0.346154 | 0.333333 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ΞĪ | 38036 | 380237 | 157.581 | 1,41,2162 | 292593 | 299991 | | _ | _ | | | | _ | _ | | | _ | _ | | | | _ | _ | | | | _ | | | |
| | 1200 1230 | 2000 | 63144 | 59-65 | 0.38167i | 282031 | 142857 | 7 | | | | | | | | | | | | | | | | | | | | | | | |
| | н | 770154 | _ | | 164286 | _ | EN . | | _ | | | | - | _ | - | | | | _ | | | | _ | | | | - | _ | | - | |
| gal | \rightarrow | 3330 | | - | == | - | 192308 | | _ | | = 0 | | | | | = 0 | | | _ | = 0 | | | _ | | = 0 | | 0 00 | _ | | 0 00 | |
| ehg | H | 79012 | 0 0 | - | 1025571 | = | 1263625 0.0 | 7 | | | - | | 0 00 | | | - | | | | | | | - | | | 0.0 | 0.00 | | 00 | | |
| S-u | a | 7836 | - | _ | 467192 B45 | _ | 29582 026 | | | - | = 0 | - | | | | = 0 | - | | | = 0 | - | | - | - | = 0 | 0 0 | - | - | - | | |
| ?ei | | 000 | | - | == | | | _ | - | | = 0 | | | | | = 0 | | | | = 0 | | | _ | - | = 0 | 0.0 | | _ | | | |
| <u>1-1</u> | ш | 000 | 0 | - | 100 to 10 | - | 2 0.316531 | - | | 2 | = 0 | - | | | | = 0 | | | | = 0 | | | | = 1 | = 0 | | | | | | |
| Ź | B 1200 E | 0.79636 | - | 7682190 | 0.00000 | _ | _ | 0.233294 | 2 | | = 0 | | | | 0 | = 0 | | | 0 | = 0 | - | | 0 | - | = 0 | | | 0 | | | |
| V A | н | 0.806396 | | - | 0.487885 | - | 0 0 | 0.30562 | | | = 0 | | | | | = 0 | | | | = 0 | | | _ | - | = 0 | | | | | | |
| 14: Table for 2D Histogram for New ANM-Rein-Sehgal | | 9346 | | 0.62265 | 0.00382 | | 0.315942 | - | 0.083333 | | = 0 | | | | | = 0 | | | | = 0 | | | _ | - | = 0 | | | _ | | | |
| or] | 1000 1050 1050 1100 | 0.780172 | 0.69735 | 0.649693 | 15030 | 0.420697 | 0.358079 | 0234048 | 0.181818 | | = 0 | | | | | = 0 | | | _ | = 0 | | | _ | | = 0 | | | _ | | | |
| n f | 100 103 | 0.808855 | | 0.6463-6 | 0.48878 | 0.425238 | 0.34746 | 0.2519TB | 0.125 | 0.157895 | = 0 | | | | | = 0 | | | | = 0 | | | | | = 0 | | | | | | |
| ran | 920 1000 | 0.79961 | 0.7051.78 | 0.656827 | 051303 | 0.439291 | 0.3661.36 | 021810 | _ | 0.114286 | = 0 | | | В | | = 0 | | | | = 0 | | | | | = 0 | | | | | | |
| tog | 026 006 | 0.816404 | 0.699029 | 0.649262 | 0509034 | 0.428421 | 037/224 | 0214834 | | | 1433333B | 2 | | | | = 0 | | | | = 0 | | | | | = 0 | | | | | | |
| His | 850 900 | 0.802672 | 0.723165 | 0.652591 | 0.525933 | 0.463828 | 0.40734 | 0.246708 | 0.136364 | 0.105263 | | | | В | | = 0 | | | В | = 0 | | | | | = 0 | | | | | | |
| D | E8 E8 | 883654 | 1627 | 1161/9 | 283536 | 76737 | 98889 | 233294 | 0.173556 | 0.121076 | 0.195 | 7 | | | | | | | _ | | | | _ | | | | | _ | | | |
| r 2 | П | 8314 | 736591 | 578973 | 50H67 | 72237 | 3,403238 | 252766 | 138963 | 13664 | A-62//80 | 7 | | _ | | | | | _ | | | _ | _ | _ | | | | _ | | | |
| of (| \rightarrow | 207477 207477 | 2938 | 675302 | 238364 | 9238 | 1923 | 280552 | 182301 | | | 2286820 | | | | | | | _ | | | | | | | | | | | | |
| pld | H | 81736 | 29162 | 685785 | 200000 | 46000 | 753897 | 2333 | 2960 | 1380-6 | | 982-1200 | | | | | | | _ | | | | _ | | | | | _ | | | |
| Γ_{3} | Ħ | 81278 | _ | _ | 523181 | _ | 418154 | - | _ | Ξ. | 0.000199 | | _ | | 0 | = 0 | | | | = 0 | | | 0 | - | = 0 | 0 0 | | 0 | | 0.00 | 0.0 |
| 4 | | 1800012 1800012 178460 | | - | 566528 05 | = | 6 6 | 25/11/2 11/2 | _ | 0 1 | 1081/281 | _ | _ | | | = 0 | | | | = 0 | - | | | - | = 0 | 0 0 | | | | | |
| ble 1 | H | | _ | 0 1 | 5 0 | _ | = 0 | - | _ | - | _ | M515464 0.01 | _ | | | = 0 | - | | | = 0 | - | | - | = 1 | = 0 | 0 0 | | - | | - | |
| ab | H | 1 0.822749 | - | _ | | - | _ | - | ÷ | - | = 0 | 0 0 | | | | = 0 | - | | | = 0 | - | | | = 1 | = 0 | | | | | | |
| Г | E E | 0.722011 | 0.642998 | 0.578125 | 0.00183 | 0.394628 | 0.333169 | 0.202046 | Ť | - | 0.0526316 | | | | | = 0 | | | | = 0 | | | | | = 0 | | | | | | |
| | 400-420 | 0.511915 | 0529018 | 0.500719 | 0.28534 | 13-42622 | 0294831 | 0.17744 | 0.127891 | 0.08K3-221 | 1449944 | | | | | = 0 | | | _ | = 0 | | | _ | - | | | | _ | | | |
| | 330-400 | 52264 | 1.627 | 8002 | 318672 | 1292653 | 22232 | 13113 | 0.103003 | 16537772 | 1820202 | To the latest of | | _ | _ | | | | _ | | | | _ | | | | | _ | | | |
| | 300-350 | 201406 | 372408 | 32415 | 237522 | 21821 | 768667 | JR9-64 | | 8170428 | SIM MISS | | | | | | | | _ | | | | _ | | | | | | | | |
| | | 26481 | 384642 | 240964 | 157462 | 18201 | 2000 | 047888 | 1011465 | 210-22007 | | | | | | | | | _ | | | | _ | | | | | _ | | | |
| | | 179487 | _ | - | 2007 | | 1658187 0.10 | | 9 | 8. | = 0 | | 0 | | | = 0 | | | | = 0 | | | - | - | = 0 | 0.0 | - | | | | |
| | H | 000 | _ | | 5 0 | - | 9 6 | 5 | | - | = 0 | | | | | = 0 | | | | = 0 | | | _ | | = 0 | 0.0 | | _ | | | |
| | H | 0.0538922 | 0.0302959 | 0.0477273 | 0.01355267 | 0.0026 | _ | | | - | = 0 | | | 0 | | = 0 | | | | = 0 | | | | | = 0 | | | | | | |
| | 50 100 100 150 | | | | = = | | _ | - | | | = 0 | - | | | | = 0 | - | | | = 0 | - | | | - | = 0 | | | | | | |
| | 9 | | | - | == | | - | | | | = 0 | | | | | = 0 | | | | = 0 | | | | - | = 0 | 0.0 | | | | | |
| | RS 0.50 MV | | | - | == | | | | _ | | = 0 | | | _ | - | = 0 | | | | 8 8 | 1 4 | | | 25 | 8 8 | | | | e e | | |
| | New ANATES | 45.9 Dy | 135.48 Deg | 18-22.5 Deg | 27.31.5 Dec | 315.36 Deg | 36-40.5 Deg | 6-46 Dec | 195.54 Deg | 14.38.5 Deg | CO CLU DEL | 775 72 Dec | 2 7 5 Deg | 765-81 Deg | 31-Ki 5 Deg | San He con | 945.49 Dec | 99-103 5 Day | 103 5 108 Deg | 10 5 117 Day | 17 1215 Dev | 21.5 126 Day | 126-1305 Day | 20 2 12 Day | 135-1395 DPg | 44 1 49 E Day | 45-130 Di | 153-1575 Dag | 157.5-162 Day | 165 5 17 Day | 17 175 Deg 175 1월 Deg |
| | لك | | | | | Ť | _ | _ | Ť | | Ť | Ī | | | | | Ť | | Ť | _ | | Ť | Ť | _ | _ | _ | | Ť | _ | _ | |

| | 30.2000 | 821231 | 1663507 | 0.487179 | 0.482730 | 9833 | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--|--|---|--|--|--|--|--|--|---|--|--|--|-----------|---|--|--------------|-----|--|--|-----|------|---|-----------------|---|--|-------------|---|---|
| | 1998-1998 | | 16827 | 552632 | _ | | | | _ | _ | - | = : | | | | _ | - | - | | 0 | = 0 | | | | 0 | 0.0 | 0 | | _ |
| | H | 774194 11.85 774824 11.85 | E-0 E-01-69 | _ | - | 2333 | 3 | | | | | = 1 | - 0 | | | | | | | | = 0 | | | = = | | 0 0 | | | - |
| | н | 0 0 | - | | _ | | 2 | | | | = 1 | = 1 | | | | | - | | | | = 0 | | | = = | | | | | |
| | н | 0.815789 | _ | 0.325641 | _ | 0.136364 | . = | | | | | = 1 | - 0 | | | | | | | | = 0 | | | | | | | | |
| | 1730-1800 | 762767.0 | 0.727488 | 0.573034 | 0.445783 | 0.380932 | . = | | | | = 1 | = 1 | | | | | = 1 | | | | = 0 | | | == | | | | | _ |
| | 1708-1750 | 0.824074 | 0.698795 | 231915 | 0.443299 | 0.4 | | | | | | = : | | | | | | | | | | | | | | | | | |
| | 639-178 | 82228 | 62029 | 5833 | 477273 | 3550.0 | 100 | , | | | | | | | | | | | | | | | | | | | | | _ |
| | 1606-1650 1 | 0 62.2 | 712786 | 1929 | 69945 | 263889 | | 0.00 | | _ | 0 1 | = 1 | - 0 | | | | 0 1 | | 0.00 | | = 0 | | | | | 00 | | 0.00 | _ |
| | 530-1600 100 | 825397 0.8 778319 0.7 | - | | _ | 3318 | | 12 | | | - | = 1 | 0.0 | | | | - | | | | = 0 | | | | | | | | |
| | - | | В: | 22 0.60885 | _ | 17 033 | 0.198667 | 17 | | | = 1 | = 1 | = 0 | | | | = 1 | | | | = 0 | | | | | | | | _ |
| | 드 | 0.823129 | - | 0.581722 | 0.501502 | 988 | 1 | - | | | - | = : | | | | | - | | | | = 0 | | | = = | | | | - 0 | |
| Ę | | 799588.0 | 0.714434 | 0.570148 | 0.493639 | 0.407609 | 1157895 | | В | | | = : | | | | | | | | | = 0 | | | | | | | | |
| gų | 330 1400 1400 1450 | 1992 | 6902.0 | 0.403365 | 0.518738 | 0.401487 | 1.242424 | 0.285714 | | | | - | | | | | | | | | = 0 | | | | | | | | |
| $\tilde{\mathbf{v}}$ | 330-1400 | 813084 | 711163 | 624873 | 594687 | 30003 | 410236 | | 1.7 | | | | | | | | | | | | | | | | | | | | |
| ger | 1338 | 200003 | 720774 | 286433 | 548585 | 7447 | - | - | _ | _ | | | | | _ | | | | | | | | | | | | | | _ |
| Berger-Sehgal | Ξ | 84074 0.8 | | 584667 0.2 | | 3,0561 | 0 0 | 228571 0.5 | 3333 | | | | | | | | | 0 0 | | - | = 0 | - | | | | | - | 0.0 | |
| IJ-Ţ | н | | В: | 0 0 | | В 0 | | - | _ | | - | = 1 | | | | | - | | | | = 0 | | | == | | | | | _ |
| <u> </u> | Е | 1941433 | _ | 0.628604 | _ | 5 0.67143 | - | _ | _ | | = 1 | = 1 | - 0 | | | | = 1 | | | | = 0 | | | = = | | | | | |
| ⋖ | H | 0.0 | | 0.646891 | 0.537295 | 0.4576 | 0.335836 | 9 0 | _ | | | = : | | | | в | | | | | = 0 | | | == | | | | | |
| New | 드 | 0.816366 | _ | | | 999 | 0.323529 | 97 | | | - | = : | | | | | - | | | | = 0 | | | == | | | | | |
| | 1030-1100 | 0.840432 | 0.73664 | 2501590 | 0.583187 | 0.5 | 13564 | 0.283262 | 0.195632 | 0.130435 | 0.0769231 | = : | | | | | | | | | = 0 | | | == | | | | | |
| tor | 000-1050 | 818653 | 718873 | 1989 | 569439 | 301982 485068 | 20084 | 257162 | 229299 | 145455 | | | | | | | | | | | | | | | | | | | |
| П | | 0.813-63 0 | | | 9828 | | | 22 | 222 | 988 | 7 | - | - | - | - | _ | - | - | | | = 0 | - | _ | - | - | | - | - | - |
| ☱ | ΙĖΙ | 50 F | 円 | 5 19 | 59 | 17 9 | - | F | 222 | 148 | 20 | | | | | | | | | | | | | | | | | | |
| grar | 0.950 930 | 32208 0.80 304378 0.23 | 73200 0.7E | 34716 0.55 | | 0 0 | | _ | _ | <u> </u> | 140254 0.285714 | 9 | 0 0 | | | 0 | | | | | = 0 | | | = = | | - | 0 | - 0 | - |
| stograr | 900-920 | 0.83208 | 0.732009 | 0.700111 | 0.578702 0 | 0.508479 | 0.372638 | 0.3159.08 | 0.213368 0 | 8-60Er0 | 0.149254 | 0.77 | | | | 0 | | | | | | | | | | | | | |
| Histogram | 859 900 909 950 | 802280 22080 | 0.782567 0.732009 | 0.686 0.4010 | 0.578702 | | 0.372638 | 0.3159.08 | 0.213368 0 | 0.20252 0.1309-6 (| 0.15044 0.1-0254 | | 0 | | | | 0 | - 0 | | 0 | | | | | | | 0 | | 0 0 |
| <u> </u> | 800 850 850 900 900 950 | 802280 220280 82080 | 0.7686 0.782567 0.752009 | 0.700111 | 0.578702 0 | 0.508479 | 0.372638 | 0.3159.08 | 0.213368 0 | 0.18807 0.20252 0.1309-6 | 0.1-0.667 0.1150-44 0.1-0.254 | 1 11333/14 | 1002000 | 0 0 0 | | 0 0 0 | | | | | | | | | | 00 | 0 0 | | 0 0 |
| <u> </u> | 750 800 800 850 850 900 900 950 | 0.85629.4 0.845438 0.855072 0.83208 0.812541 0.702568 0.781474 0.804378 | 0.78147 0.7686 0.78367 0.73200 | 0.537 0.53488 0.73645 0.700111 | 0.609545 0.603815 0.602548 0.578702 0 | 0.545725 0.588095 0.525974 0.58473 0.47021 0.440747 0.45739 0.446730 | 0.36731 0.398878 0.392036 0.372638 | 0.20774 0.311813 0.255835 0.315938 | 0.259352 0.254042 0.228395 0.213368 0 | 0.210306 0.188017 0.20252 0.130948 0 | 0.149296 0.14667 0.115044 0.149254 | U.0854064 U.0555/14 U | 0.0000000000000000000000000000000000000 | 0 0 0 | | | | | | | | | | | | | | | |
| <u> </u> | 720-800 800-850 850-900 900-950 | 802280 220280 82080 | 0.78147 0.7686 0.78367 0.73200 | 0.686 0.4010 | 0.609545 0.603815 0.602548 0.578702 0 | 0.508479 | 0.36731 0.398878 0.392036 0.372638 | 0.20774 0.311813 0.255835 0.315938 | 0.259352 0.254042 0.228395 0.213368 0 | 0.210306 0.188017 0.20252 0.130948 0 | 0.12426 0.149296 0.144667 0.115044 0.142254 | U.M.46372 U.MSJUBA U.USSS714 U | 1002000 | - | | | | | | | | | | | | | | | |
| <u> </u> | 70.750 720.800 800.850 850.900 900.950 | 0.85629.4 0.845438 0.855072 0.83208 0.812541 0.702568 0.781474 0.804378 | 0.77378 0.781473 0.76586 0.78267 0.752008 | 0.537 0.53488 0.73645 0.700111 | 0.609545 0.603815 0.602548 0.578702 0 | 0.545725 0.588095 0.525974 0.58473 0.47021 0.440747 0.45739 0.446730 | 0.40723 0.4673 0.4683 0.4683 0.4283 | 0.27721 0.20774 0.311813 0.25835 0.315938 | 0.267346 0.259352 0.254042 0.228395 0.213368 0 | 0.176355 0.200306 0.188017 0.202572 0.130948 0 | 0.12426 0.149296 0.144667 0.115044 0.142254 | 0.2646372 0.2854064 0.055574 0 | 0.0000000000000000000000000000000000000 | | | | | | | | | | | | | | | | |
| Table for 2D | 650.700 710.750 750.800 800.850 850.900 900.950 | 0.82707 0.86524 0.8458 0.85572 0.859.8 0.8361 0.8254 0.7258 0.743 0.8933 | 0.77378 0.781475 0.7686 0.762567 0.722000 | 0.555-55 0.537 0.534-58 0.5355 0.500.0 0.85669 0.573-64 0.5356 0.586 0.586 | 0.404(35 0.409545 0.6(3815 0.6(2548 0.5787)2 0 | 0.539545 0.545725 0.58805 0.525974 0.568473 | 0.40723 0.4673 0.4683 0.4683 0.4283 | 0.27721 0.20774 0.311813 0.25835 0.315938 | 0.367346 0.25932 0.254042 0.228395 0.213368 0 | 0.20367 0.17635 0.20306 0.188017 0.202572 0.130948 0 | 0.146563 0.12426 0.146296 0.14667 0.115044 0.146254 | 0.080987 0.0846872 0.0854084 0.0855744 0 | 0.0050.004 0.0057.0047 0.0050.005 0.0055.004 | 0 2399300 | | | | | | | | | | | | | | | |
| Table for 2D | 600.650 650.700 710.750 750.810 800.850 850.900 900.950 | 808388 124962 125088 125089 125088 126 | 0.774114 0.78382 0.77378 0.781475 0.7586 0.792507 0.722008 | 0.58371 0.5858 0.5568 0.537 0.5368 0.5810 0.58171 0.58572 0.85689 0.57384 0.5556 0.586 | 0.62878 0.62953 0.80405 0.809545 0.603815 0.602548 0.578712 0 | 0.500.07 0.500.20 0.509.55 0.557.55 0.500.05 0.539.74 0.500.43 0.500.00 0.400.87 0.400.01 0.400.70 0.400.70 0.400.70 | 0.418747 0.422946 0.407023 0.306731 0.30887 0.302036 0.325638 | 0.35745 0.34608 0.37521 0.30774 0.31813 0.25835 0.315938 | 0.23265 0.27491 0.267346 0.259352 0.254042 0.228395 0.213368 0 | 0.189664 0.202367 0.176355 0.200306 0.188017 0.202572 0.130948 0 | 0.14569 0.14558 0.12428 0.146296 0.14667 0.15044 0.146254 | 0.008.65 0.008.0357 0.004.057.0 0.005.044 0.00557.44 0 | DESCRIPTION DESCRI | 0 239900 | | | | | | | | | | | | | | | |
| 15: Table for 2D | 350-010 600-650 650-710 710-750 720-810 800-850 850-910 900-950 | 0.79576 0.89484 0.84907 0.82797 0.86524 0.86488 0.85502 0.82808 | 0.78837 0.774114 0.78382 0.77578 0.78147 0.7686 0.72567 0.72608 | 0.7096 0.7455 0.74656 0.75046 0.757 0.75448 0.75045 0.700111 | 0.6-6331 0.6-27-8 0.6-25-35 0.40-65 0.4055 0.60-68-15 0.50-78 0.5-27-12 0 | 0.5788 0.5087 0.5828 0.3956 0.5675 0.5806 0.5597 0.50043 | 0.4005 0.4057 0.42545 0.40723 0.3671 0.3687 0.3203 0.3263 | 031695 037045 03408 037021 030774 0311813 025958 031593 | 0.2363 0.2355 0.2749 0.35746 0.2932 0.25404 0.2835 0.21338 0 | 0.194822 0.189684 0.203367 0.175355 0.210306 0.188017 0.202572 0.130948 0 | 0.128324 0.14609 0.14563 0.12428 0.149286 0.14667 0.115044 0.140254 | 1986-512 1798-55 1798-55 1798-572 1798-1164 1798-574 1 | 0.004 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | 0 239300 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 350-010 600-650 650-710 710-750 720-810 800-850 850-910 900-950 | 808388 124982 124983 124883 124 | 0.7817.4 0.78587 0.7240.4 0.78382 0.773778 0.781475 0.78586 0.78567 0.78200 | 0.72538 0.71795 0.74535 0.74886 0.537 0.537 0.5348 0.72813 0.55519 0.70815 0.508171 0.508573 0.28609 0.57344 0.5556 0.508 0.54715 | 0.600038 0.6-633 0.62878 0.628536 0.60055 0.609545 0.603815 0.62854 0.57872 0 | 0.51213.4 0.57881 0.50187 0.58283 0.58935 0.56725 0.58095 0.55974 0.504.73 0.48174 0.48174 0.48174 0.48174 | 0.353491 0.40037 0.418747 0.422945 0.401723 0.366731 0.36874 0.322638 0.322638 | 0.20015 0.20595 0.37745 0.34608 0.37721 0.2074 0.211813 0.20835 0.215938 | 0.229012 0.23659 0.23565 0.27490 0.357846 0.25952 0.254042 0.228355 0.213368 0 | 0.169149 0.194822 0.189664 0.20357 0.176355 0.210306 0.188017 0.202572 0.139948 0 | 0.126419 0.125324 0.146019 0.146358 0.12425 0.146266 0.14667 0.115044 0.146254 0.146254 | 12/19954 12/29 | 0.05.5090 | 0 2393000 | | | | | | | | | | | | | | | |
| 15: Table for 2D | 300.530 350.600 600.650 650.700 700.750 720.800 800.850 850.900 900.650 | 0.79576 0.89484 0.84907 0.82797 0.86524 0.86488 0.85502 0.82808 | 0.7817.4 0.78587 0.7240.4 0.785362 0.773578 0.781475 0.78586 0.78567 0.782008 | 0.7096 0.7455 0.74656 0.75046 0.757 0.75448 0.75045 0.700111 | 0.000038 0.0-0331 0.0-278 0.0-253 0.00-035 0.009545 0.00835 0.0-0558 0.57870 0 | 0.5788 0.5087 0.5828 0.3956 0.5675 0.5806 0.5597 0.50043 | 0.555401 0.400137 0.48547 0.425945 0.40783 0.396731 0.59673 0.32698 0.32658 | 0.20015 0.20595 0.37745 0.34608 0.37721 0.2074 0.211813 0.20835 0.215938 | 0.229012 0.23659 0.23565 0.27490 0.357846 0.25952 0.254042 0.228355 0.213368 0 | 0.169149 0.194822 0.189664 0.203367 0.176355 0.20386 0.188017 0.202572 0.139948 0 | 0.129419 0.125324 0.146019 0.14635 0.12455 0.146256 0.14657 0.115044 0.146254 | 12/19954 12/29 | 0.004 0.00 0.00 0.00 0.00 0.00 0.00 0.0 | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 450.500 500.550 550.000 600.650 650.700 700.750 720.800 800.850 850.000 900.650 | 208380 103830 103838 10 | 0.88138 0.781754 0.76837 0.778114 0.783302 0.778378 0.781475 0.78367 0.78367 0.782008 | 0.72538 0.71795 0.74535 0.74886 0.537 0.537 0.5348 0.72813 0.55519 0.70815 0.508171 0.508573 0.28609 0.57344 0.5556 0.508 0.54715 | 0.516755 0.500138 0.6453H 0.62678 0.62653K 0.4065 0.40954K 0.500815 0.60254K 0.528712 0 | 1 0512134 057386 056187 058288 058955 056725 058065 055974 058043 058130 | 0.35250 0.35340 0.40017 0.418347 0.42246 0.40723 0.9671 0.36870 0.30036 0.3268 | 127247 130815 13499 135745 13488 135721 135183 12588 13598 | 0.21244 0.229012 0.22659 0.22265 0.27449 0.25756 0.25952 0.254042 0.225355 0.213388 0 | 0.448848 0.169149 0.194822 0.18964 0.203367 0.20355 0.20306 0.188017 0.20252 0.13948 0 | 0.114256 0.124419 0.135324 0.14509 0.14555 0.12435 0.14256 0.14567 0.14554 0.145254 | 1509-2662 117-159-31 1138-3372 1138-3372 1138-3164 1138-374 11 | 0.05.5090 | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 400-50 420-500 300-530 550-500 600-550 650-700 700-750 750-800 800-850 850-900 900-950 | 80380 67302 88500 15380 16380 68560 68560 68560 68560 68560 686000 | 0.5885 0.7815 0.7815 0.7815 0.7825 0. | 0.58284 0.85834 0.72886 0.77835 0.74835 0.74888 0.73846 0.7377 0.58669 0.6737 0.5656 0.566 0.56716 | 0.54675 0.60038 0.64539 0.62878 0.62538 0.4055 0.409545 0.60815 0.60548 0.52872 0 | 0.4554 051234 05788 05687 05828 05858 05858 05852 05862 05897 05843 05843 | 0.35250 0.35340 0.40017 0.418347 0.42246 0.40723 0.9671 0.36870 0.30036 0.3268 | 127247 130815 13499 135745 13488 135721 135183 12588 13598 | 0.17693 0.21244 0.229012 0.23659 0.232955 0.27490 0.367346 0.559552 0.2540-20 0.228355 0.213388 0 | 0.118950 0.148848 0.169149 0.19482 0.18964 0.216367 0.176555 0.210306 0.18807 0.150946 0.18957 | 0.080655 0.004556 0.024419 0.035334 0.04509 0.04558 0.045286 0.046657 0.05044 0.04554 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 331-40 400-60 420-50 300-53 550-80 600-60 650-70 700-750 720-80 800-850 850-90 900-650 | 4 0.40488 0.505161 0.70579 0.80561 0.70578 0.834484 0.84607 0.82631 0.8363 0.8360 0.83 | 0.48322 0.5835 0.88139 0.78154 0.78837 0.77414 0.78382 0.77557 0.78145 0.7886 0.7856 0.72507 0.72809 | | 7 0.385731 0.44787 0.34675 0.546038 0.546331 0.54878 0.543535 0.540354 0.540354 0.540354 0.540354 0.540354 0.540354 | 1 0.52278 0.55777 0.4559.4 0.5123.4 0.5128.8 0.5958.7 0.588.8 0.589.5 0.56723 0.589.9 0.589.7 0.588.7 0.518.7 | 1.24525 128885 122524 1253801 1.4837 1.48294 1.48295 128621 128621 128621 128622 128687 128621 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 128622 128687 12862 | 1.17-48 1.2326 1.27747 1.301615 1.314995 1.37745 1.346188 1.37721 1.311813 1.23688 1.33598 | 0.12777 0.1763 0.21244 0.229012 0.23659 0.22555 0.27491 0.357346 0.59352 0.254042 0.23355 0.21358 0 | 0.100349 0.118930 0.148848 0.169140 0.194822 0.18064 0.203367 0.17535 0.20316 0.18007 0.20257 0.13040 0 | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | 1509-2562 117-159-31 117-25-3 117-25-3 117-25-3 117-3-3 117-3-3 117-3- | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 300.350 330.400 400.450 430.500 300.530 550.000 500.650 550.700 700.750 750.800 800.850 850.000 900.650 | 0.8218.0 1.05.00 0.50.00 0.05. | 0.5530.2 0.48032.2 0.50355 0.83139 0.78154 0.75837 0.774114 0.78352 0.73378 0.78145 0.7586 0.7269 0.72500 | 13,000 14,000 14,000 17,000 16,000 17,000 1 | 0.312G7 0.385731 0.445737 0.51675 0.500138 0.046333 0.68353 0.68353 0.04635 0.04635 0.68353 | CARGON CANDER STATES CANDER CANDER CANDER CANDER CANDER C | 1.00 | 0.3728 0.2326 0.2326 0.77147 0.90615 0.35714 0.34088 0.37721 0.30774 0.31813 0.25588 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.080655 0.004556 0.024419 0.035334 0.04509 0.04558 0.045286 0.046657 0.05044 0.04554 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 229.300 300.350 321.400 400.400 420.500 420.500 500.530 550.000 500.650 550.700 770.750 770.300 800.850 850.900 900.850 | 2008 12 12 12 12 12 12 12 1 | 0.77107 0.35302 0.48322 0.5852 0.8853 0.75174 0.75857 0.774114 0.75322 0.77577 0.77415 0.75857 0.77509 | - 1958-1 0 19925 0 1957 1 1955 0 1955 0 1955 0 1955 0 1958 1 1958 0 1958 | 0.4426 0.31267 0.35731 0.4487 0.3675 0.3675 0.50038 0.54331 0.5428 0.5258 0.00403 0.00403 0.50038 0.5258 0.5770 | 185109 0.45534 0.55208 0.55777 0.45534 0.551314 0.55288 0.566387 0.55288 0.55384 0.55387 0.55387 0.55397 0.55397 0.45539 0.55387 0.45539 0.55387 0.553 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.12777 0.1763 0.21244 0.229012 0.23659 0.22555 0.27491 0.357346 0.59352 0.254042 0.23355 0.21358 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 300.350 330.400 400.450 430.500 300.530 550.000 500.650 550.700 700.750 750.800 800.850 850.000 900.650 | 0.4277 0.23126 0.42124 0.45126 0.45126 0.45127 0.45126 0.45127 0.451 | 0.23(0) 0.27(0) 0.23(0) 0.23(0) 0.23(0) 0.20(0) | 1-478-4 1-47 | 0.10.03.34 0.20.426 0.20.467 0.385731 0.44787 0.34675 0.50.038 0.54533 0.54537 0.65838 0.63858 0.60858 0.60858 0.568888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.568 | D.114-66 D.1551-69 D.155 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 150-200 250-250 250-300 350-350 350-300 440-50 450-500 350-50 550-50 | 2008 12 12 12 12 12 12 12 1 | 0.23(0) 0.27(0) 0.23(0) 0.23(0) 0.23(0) 0.20(0) | - 1958-1 0 19925 0 1957 1 1955 0 1955 0 1955 0 1955 0 1958 1 1958 0 1958 | 0.10.03.34 0.20.426 0.20.467 0.385731 0.44787 0.34675 0.50.038 0.54533 0.54537 0.65838 0.63858 0.60858 0.60858 0.568888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.568 | 185109 0.45534 0.55208 0.55777 0.45534 0.551314 0.55288 0.566387 0.55288 0.55384 0.55387 0.55387 0.55397 0.55397 0.45397 0.55387 0.45397 0.55387 0.553 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 1.00-150 130-200 2.00-230 2.50-300 3.00-350 3.00-300 4.00-50 4.50-500 3.00-330 5.00-300 5.00-350 6.00-350 6.00-350 7.00-350 7.00-350 8.00-850 8.00-850 9.00-850 | 0.4277 0.23126 0.42124 0.45126 0.45126 0.45127 0.45126 0.45127 0.451 | 0.23(0) 0.27(0) 0.23(0) 0.23(0) 0.23(0) 0.20(0) | 1-478-4 1-47 | 0.10.03.34 0.20.426 0.20.467 0.385731 0.44787 0.34675 0.50.038 0.54533 0.54537 0.65838 0.63858 0.60858 0.60858 0.568888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.568 | D.114-66 D.1551-69 D.155 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 50-10 100-150 130-200 200-250 230-300 300-350 330-300 400-50 430-500 500-300 500-500 600-550 650-700 700-750 730-800 800-850 850-900 900-550 | 0.4277 0.23126 0.42124 0.45126 0.45126 0.45127 0.45126 0.45127 0.451 | 0.23(0) 0.27(0) 0.23(0) 0.23(0) 0.23(0) 0.20(0) | 1-478-4 1-47 | 0.10.03.34 0.20.426 0.20.467 0.385731 0.44787 0.34675 0.50.038 0.54533 0.54537 0.65838 0.63858 0.60858 0.60858 0.568888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.568 | D.114-66 D.1551-69 D.155 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | 0-50 AMY; C 51-10 101-150 150-200 201-20 201-20 301-350 330-400 401-60 430-500 300-530 50-500 401-60 50-500 50-500 701-750 730-800 801-850 850-900 901-60 | 0.4277 0.23126 0.42124 0.45126 0.45126 0.45127 0.45126 0.45127 0.451 | 0.23(0) 0.27(0) 0.23(0) 0.23(0) 0.23(0) 0.20(0) | 1-478-4 1-47 | 0.10.03.34 0.20.426 0.20.467 0.385731 0.44787 0.34675 0.50.038 0.54533 0.54537 0.65838 0.63858 0.60858 0.60858 0.568888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.56888 0.568 | D.114-66 D.1551-69 D.155 | 0.05557 0.05676 0.254225 0.25558 0.257559 0.540010 0.400020 0.40000 0. | 48.88.2 1.37.28 1.72.48 1.22.20 1.27.947 1.33.89.5 1.37.14 1.33.77.1 1.23.77.1 1.33.77 | 0.0025481 0.12777 0.17693 0.21244 0.229012 0.22663 0.22955 0.27449 0.267346 0.55952 0.254040 0.228355 0.213388 0 | 0.510817 0.10349 0.118939 0.148848 0.169149 0.194822 0.18964 0.20367 0.176355 0.20316 0.18017 0.1267 0.13940 0. | 0.02236 0.08065 0.10426 0.126119 0.125324 0.14636 0.14626 0.14626 0.14625 | LANGERT LANGERS LAYERS LANGES LANGERS LANGERS LANGE | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 0 2393000 | | | | | | | | | | | | | | | |
| ble 15: Table for 2D | TES 0.50 ANY/C 50.40 100.450 120.400 200.420 200.420 300.850 300.850 300.400.60 400.60 400.60 300.850 500.00 500.600 500.00 700.750 730.800 800.850 850.900 900.600 | 0.4277 0.23126 0.42124 0.45126 0.45126 0.45127 0.45126 0.45127 0.451 | 0 0 0 0.700033 0.130039 0.271067 0.55302 0.50052 0.50052 0.50052 0.75105 0.751054 0.75057 0.77114 0.75302 0.771578 0.751450 0.77050 0.770507 0.77000 | 1-478-4 1-47 | 0 0 0 0 0 0.09664 0.09428 0.09428 0.00428 0.00428 0.04287 0.0457 0.0507 0.0507 0.0507 0.0507 0.0507 0.0507 0.0042 0.0042 0.00954 0.00954 0.00954 0.000 | D.114-66 D.1551-69 D.155 | 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0.08593 0.085481 0.17777 0.1783 0.2244 0.25912 0.2565 0.2565 0.2574 0.2558 0.2593 0.2585 0.2598 0 | 2 0 0 0 0 0 0 0 0 0.013608 0.4510817 0.10349 0.18939 0.148848 0.15949 0.15922 0.158064 0.150367 0.17035 0.210306 0.18037 0.2033 0.15037 0.15037 0.15039 0 | 124524 014526 01524 014526 0154524 014500 014650 01 | 12/2/2/2 12/2/2 1 | DESCRIPTOR DESCRIPTION OF THE PROPERTY DESCRIPTION DESCRIPTION OF THE PROPERTY | 123333 | | 8-85 50 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 26 of 100 cm | | 20 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 20g 31g 20g 20g 20g 20g 20g 20g 20g 20g 20g 20 | | 1000 | 250202020 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 200 A 1970 DOI: | 1.83:1382.Deg 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Management of the control of the con | 133:475 por | 250 291 291 291 291 291 291 291 291 291 291 | 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |