

LAB EXERCISE: 3

GNSS Data Processing using Bernese Software

Bernese 5.2 User Interface

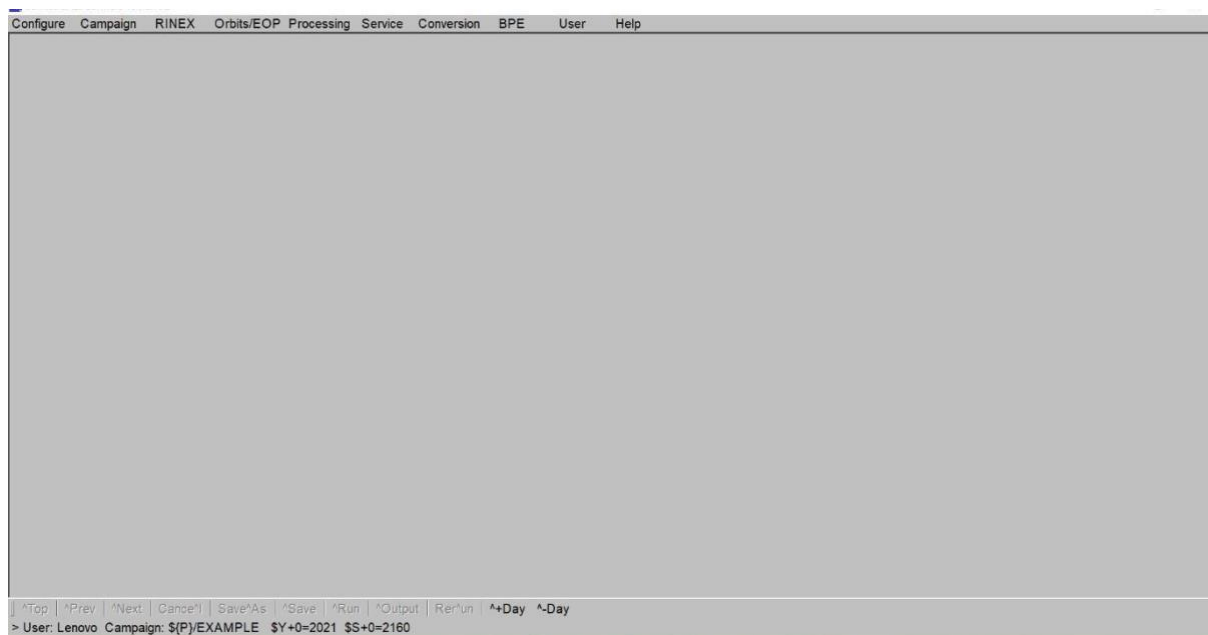


Figure: Bernese software interface

Different files used in Bernese:

CRD: Geocentric station coordinates.

VEL: Station velocities information; Velocity information (V_X , V_Y , V_Z in meter per year)

FIX: Selection list of station names for automated processing, e.g., for datum definition, selection of potential reference clock, etc. File contains station name and marker number.

ERP: Pole coordinates, UT1–UTC, UTC–GPS, nutation offsets.

EPH: Final GNSS orbits and clocks for the day of year.

CLK: Satellite and station clock parameters in the official clock RINEX format.

STA: Station related meta information (e.g., station name, equipment, intervals with problematic data)

ABB: Station abbreviation table; 4– and 2–character station abbreviations.

PLD: Tectonic plate assignment of unknown stations.

DPE045.EPH: Information about Planetary and Lunar ephemerides. The Development Ephemerides

DE405 are available from JPL and is in binary format.

DCB: Differential code biases. They are the systematic errors due to hardware delays , or biases, between two GNSS code observations at the same or different frequencies. DCBs are required for code-based positioning of GNSS receivers, extracting ionosphere total electron content (TEC), and other applications.

P1P2: Differential (P1-P2) code biases for satellites and receivers (in nanoseconds).

P1C1: Differential (P1-C1) code biases for satellites and receivers (in nanoseconds).

ION: Ionosphere models (represented by sets of TEC parameters). The ionospheric models can be local, global or station specific model.

PCF: Process control files; It defines which scripts should run and in what order they should be executed.

HOI: higher order ionosphere corrections.

SAT_2022.CRX: Known station inconsistencies, i.e., known wrong RINEX header entries for receiver name/number, antenna name/number, or antenna eccentricity.

SNX: Coordinates, velocities, ERPs and other parameters in the Solution Independent Exchange format (SINEX) Version.

CLU: Define cluster of sites depending on correlation between them.

Processing multi day UP CORS data using Bernese software

Current Session and Active Campaign:

A session is the time interval covering all observations to be processed together. The current session can be set by using "[Configure>Set session/compute date](#)" which provides a date selection dialogue as shown in figure:

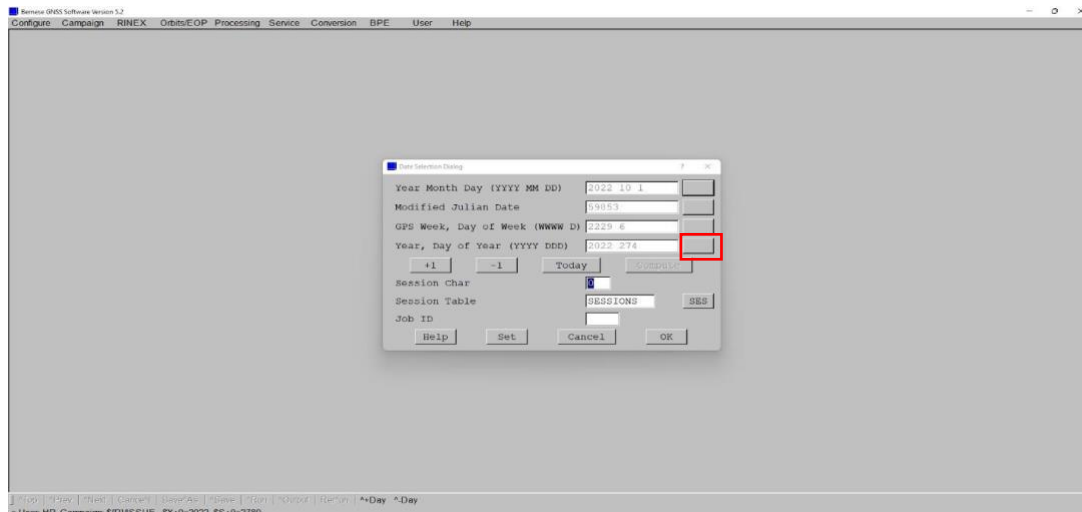


Figure: Date selection dialogue to set the current session

In current session tab, out of the 4 formats (Year Month Day, MJD, GPS Week and Day of week, and Year, Day of Year) you need to write in only one entity and click on compute option. Corresponding other rows will be automatically computed. For processing multi day data, insert the first day of your observation in Date Selection Dialog and the software is intelligent by itself to process the subsequent days of data if it gets the necessary input raw files.

Click OK.

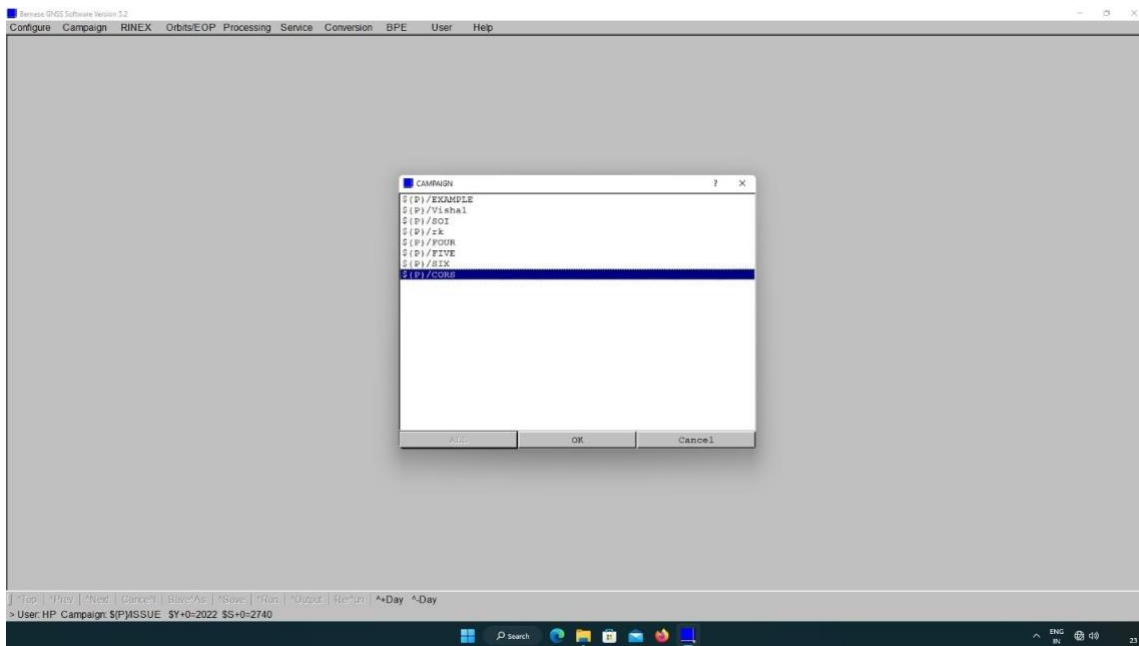
The active campaign is listed in the status bar of the menu. The menu needs to know the campaign you are currently processing. For this, "[Campaign >Edit List of campaigns](#)". Click on the plus sign to edit a new campaign and save it as shown in figure below.



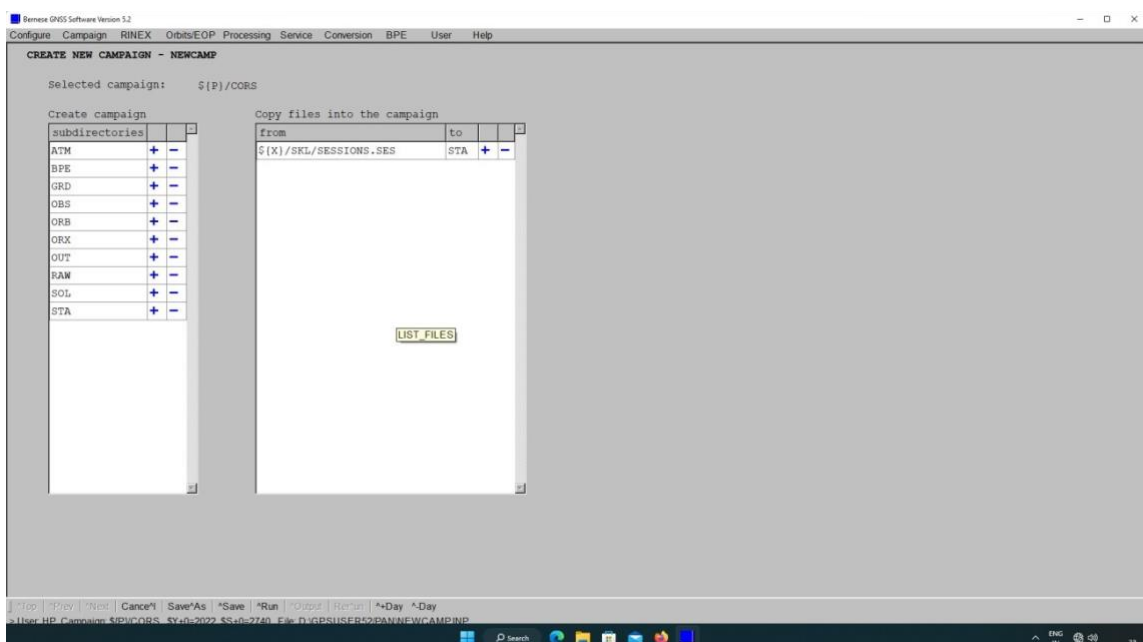
NOTE-

1. Newly created campaign is the folder in which you will perform the processing and the output files will be generated in this folder only.
2. In this example, we chose the campaign name as **CORS**. You can choose any name as per your choice. Don't stick to the name CORS only for naming your campaign, you can choose any 4 letters name for your campaign. As we have chosen CORS as our campaign name we will stick with it throughout our manual.
3. Make sure that campaign name consists of 4 letters only without any number used (Though it's not mandatory but advised. Creating campaign with its large name will lead to error in later stage of processing).

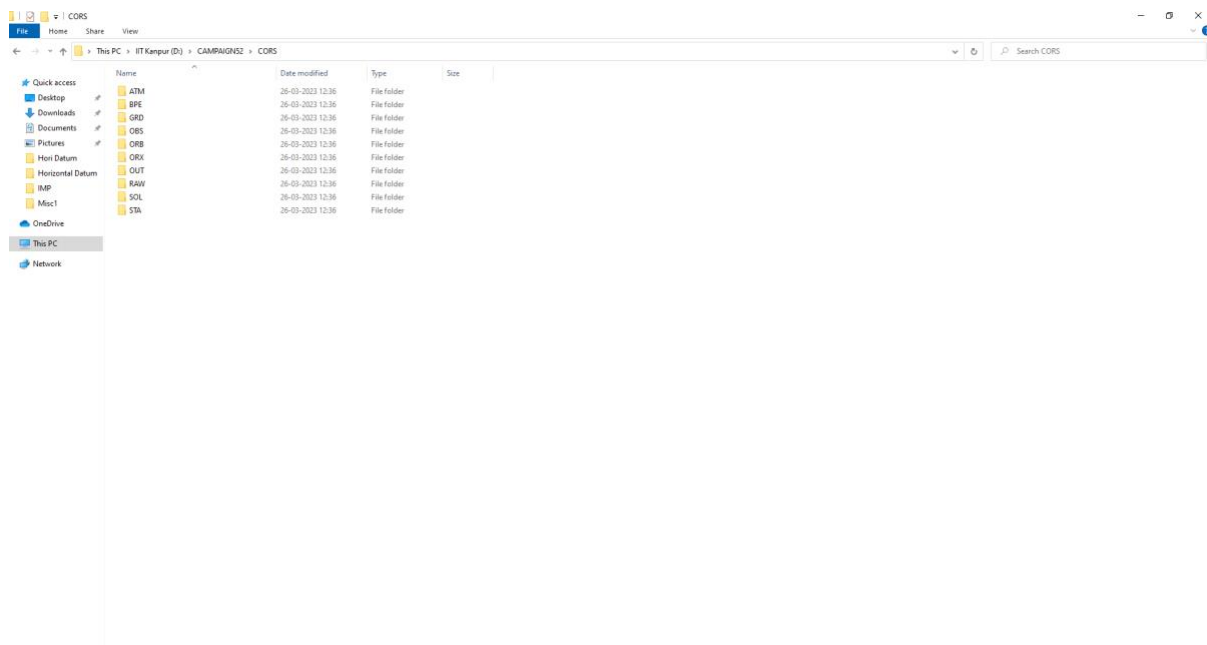
Now, to select active campaign "*Campaign>Select active campaign*". Select the campaign which you have recently created. Click OK and *neglect the two warning messages*.



For creating the new campaign, "*Campaign> Create new campaign> Run*".



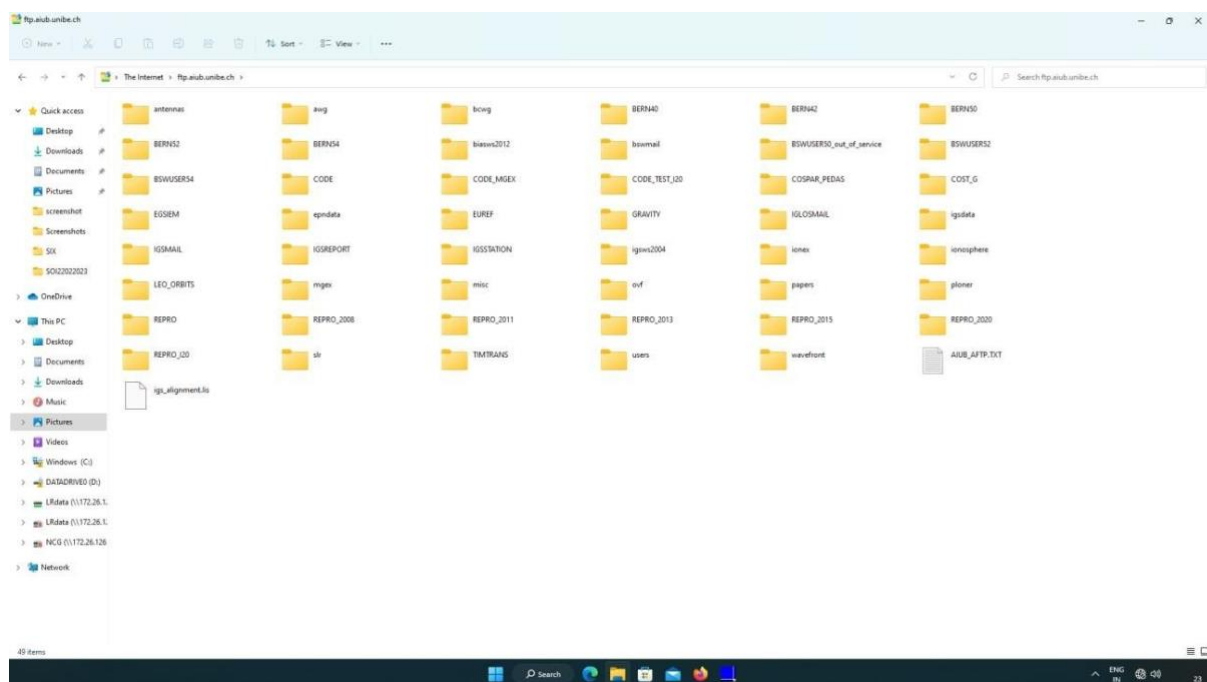
After this step you can see that a folder **CORS** is created in Campaign52 folder.



Data Downloading using FTP:

NOTE: Before starting to download the data, you are suggested to create a folder on your desktop, so that initially you can paste all the necessary raw files at one place and later paste in the necessary folders wherever required.

It is important to download the supporting data files using ftp which will be used in processing. For accessing any files using FTP, *make sure that you have your internet connection.*



The files to be downloaded using <ftp://ftp.aiub.unibe.ch/> are as follows-

CLK, ERP, EPH, ION, P1C1XXXX.DCB, P1P2XXXX.DCB will be downloaded from - <ftp://ftp.aiub.unibe.ch/> > **CODE** > **YEAR** (year folder corresponds to the year in which you are processing RINEX data)

NOTE: For accessing the ftp from AIUB and GARNER (SOPAC) site, instead of writing complete

path it is better to write <ftp://ftp.aiub.unibe.ch/> or <ftp://garner.ucsd.edu/> and then manually access the corresponding folders.

For e.g. The file will be named as, COD22303.CLK for 5th October 2022 where 2230 i.e. first 4 numbers represents GPS week and last digit i.e. 3 here represents Day of Week. Similarly you have to download other necessary files depending on the day which you are processing RINEX data.

NOTE:

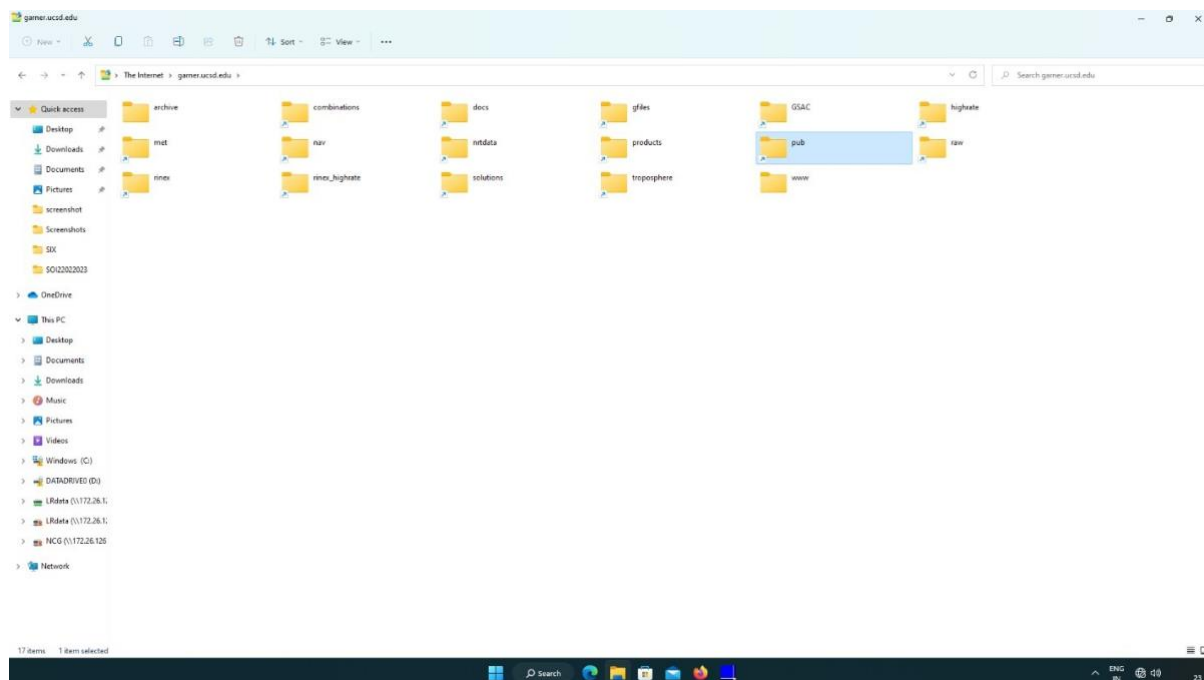
- 1) CLK, ERP, EPH and ION are **daily files**, so download that day file only on which you are processing the RINEX data. The GPS week and day of week can be seen in [Configure>Set Session/Compute date](#) option.
- 2) Download the raw files for all 4 days at this moment only.

P1C1 and P1P2 files are **monthly files**. For e.g. P1C1 file October 2022 will be named as P1C12210.DCB. If the file name is P1C12210.DCB.Z, it simply means that the file is zipped.

Download CRD, VEL, FIX and PSD files from <ftp://ftp.aiub.unibe.ch/>>[BSWUSER52](#)>[STA](#). The files will be like IGS14.FIX, IGS14_R.CRD, IGS14_R.VEL and IGS14.PSD.

Download SAT_2022.CRX file from <ftp://ftp.aiub.unibe.ch/>>[BSWUSER52](#)>[GEN](#).

The RINEX files of different IGS stations which will be used as the known stations for processing can be downloaded from- <ftp://garner.ucsd.edu/pub/rinex>. *(This is an optional step as you already have the IGS RINEX files, if you don't have then you need to download using this ftp site).*



Download the RINEX files of known stations (IISC, HYDE, KIT3, LHAZ, LCK4) corresponding to the day and year needed in .gz format. [For 5th October 2022 – folder will be named as day of the year i.e. 278 in which you can find the RINEX files of all IGS stations.

NOTE: The Bernese software supports both RINEX version 2 and 3 formats. The file should be in uncompressed format i.e. .22o or .rnx. If it is Hatanaka compressed, uncompress the RINEX file using crx2rn application. Also, the naming convention of version 3 is not supported in Bernese

5.2 and the software doesn't use the RINEX version 3 file which has long naming. Thus, it is required to change the naming of file from version 3 to version 2.

e.g. A file with naming as [LCK400IND_R_20222540000_01D_30S_MO.rnx](#) must be changed to LCK42540.22o. Here LCK4 is the name of the station and 254 is the day of the year.

To change the extension of a file. Go to [Menu>File Explorer Options>View>Hide extensions for known file types \(Uncheck this option\)>Apply](#).

This will enable the option to rename the extension too along with renaming the filename.

NOTE: Before renaming a file, make sure that it is unzipped (using winrar or 7Zip tool) and uncompressed using crx2rnx application).

The Planetary and Lunar Ephemerides file (DE405.EPH) is downloaded from JPL NASA website [DE405.EPH](#).

The screenshot shows the NASA Jet Propulsion Laboratory website. The main heading is "Public FTP File Browser". Below it, the path "/ftp/eph/planets/Linux/de405/" is shown. A table lists the files in this directory:

Name	Last Modified	Size	Type
Parent Directory/	-	-	Directory
header.405	2011-03-21 21:09	5.8K	File
lnx1600.405	2010-01-04 23:36	13.3M	File
lnx1750.405	2010-01-04 23:36	13.3M	File
lnx1900.405	2010-01-04 23:36	13.3M	File
lnx2050.405	2010-01-04 23:36	13.3M	File
lnxp1600p2200.405	2011-03-21 21:21	53.3M	File
testpo.405	2011-03-21 21:09	578.2K	File

At the bottom, there is a "Solar System Dynamics" logo and links for "Site Map", "Privacy", and "Image Policy".

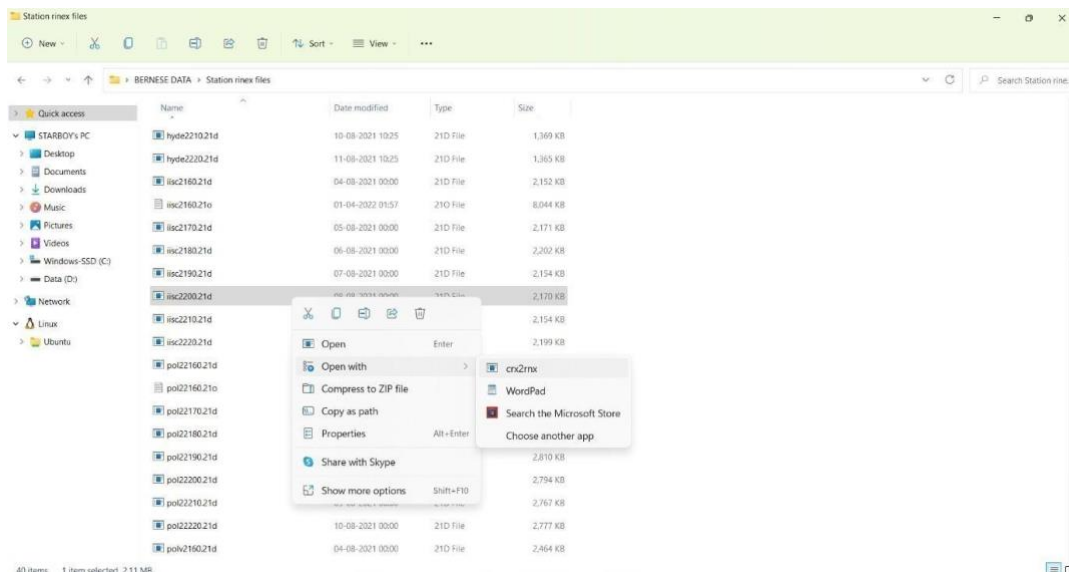
Download the file lnxp1600p2200.405 and rename it to DE405.EPH.

Information about UP CORS RINEX data

The 4 days UP CORS data has already been downloaded by you in TBC lab. The same data has to be used you in today's lab also. The IGS stations will also be same i.e. IISC, HYDE, LCK4, LHAZ, KIT3.

Conversion of files into RINEX format

For converting the Hatanaka to RINEX format use [crx2rnx.exe](#) application. Open the .22d files using this crx2rnx.exe. The files will be converted into .22o format as shown in the figure below.



Pasting the data in desired folders

Paste CLK, ERP and EPH to [DATAPOOL>COD](#).

Paste ION, P1P2, P1C1 files in [DATAPOOL>BSW52](#).

Paste station related file (CRD, VEL and FIX) to [DATAPOOL>DATA](#). (You'll have to create DATA subfolder manually if this folder is unavailable in DATAPOOL directory).

Paste CRD, VEL and FIX & PSD file in [DATAPOOL>REF52](#).

Paste DE405.EPH in [BERN52>GPS>GEN](#).

Paste PSD file in [Campaign52>CORS>STA](#).

Paste SAT_2022.CRX to [BERN52>GPS>GEN](#)

Paste gzip.exe and crx2rnrx.exe in [Strawberry>perl>bin](#) folder (Already done from our end. No need to perform this step).

NOTE: Paste all 4 days .CLK, .ERP, .EPH and .ION files at this time only to the respective folders mentioned above. The parallel BPE processing is possible only if you have pasted the necessary raw files prior to the processing step.

Creating the plate definition file

This file contains the information of plate of our unknown stations.

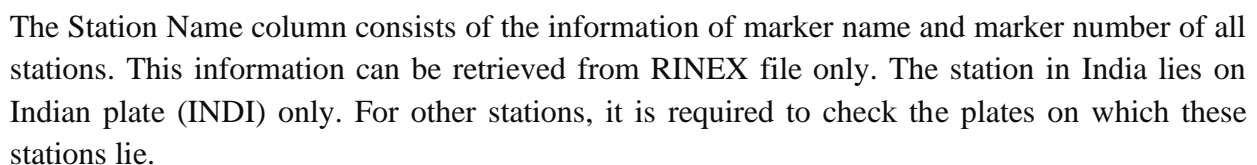
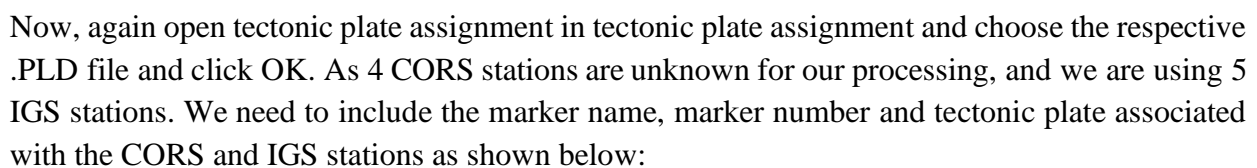
First paste the IGS14_R.CRD file to [Campaign52>CORS>STA](#) folder.

The steps for creating the plate definition file are as follows- [Campaign>Edit Station file>Tectonic plate assignment](#).

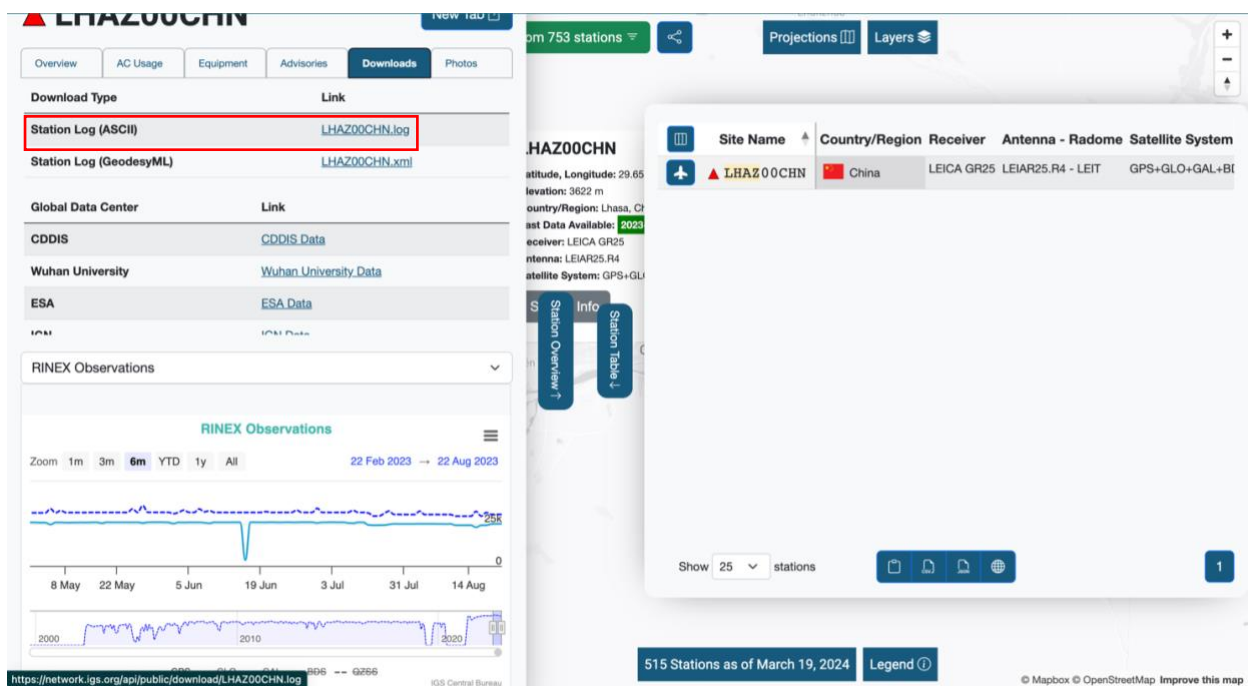
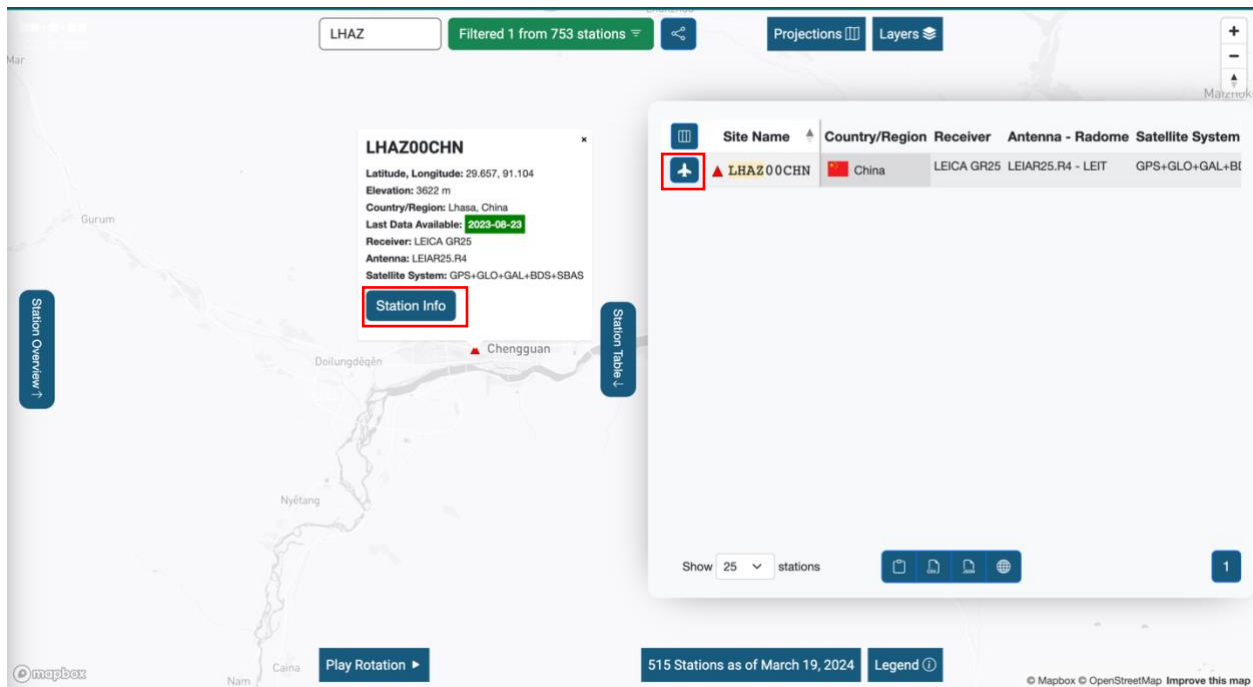
In file name write CORS.PLD and click OK. You will be required to choose IGS14_R.CRD file, open it. Once it is opened, then save it.

Thus, a plate definition file (.PLD) will be created in [CAMPAIGN52>CORS>STA](#). The file contains so many stations by default which we need to remove and insert our own CORS unknown stations.

For removing other stations data, open CORS.PLD file in WordPad or Notepad, remove all the station data except 1st station as shown in figure below.



This information is available on [IGS website](#). Search for the station and click to get the station info. The log file for a station has the information of the tectonic plate in which the station lies.



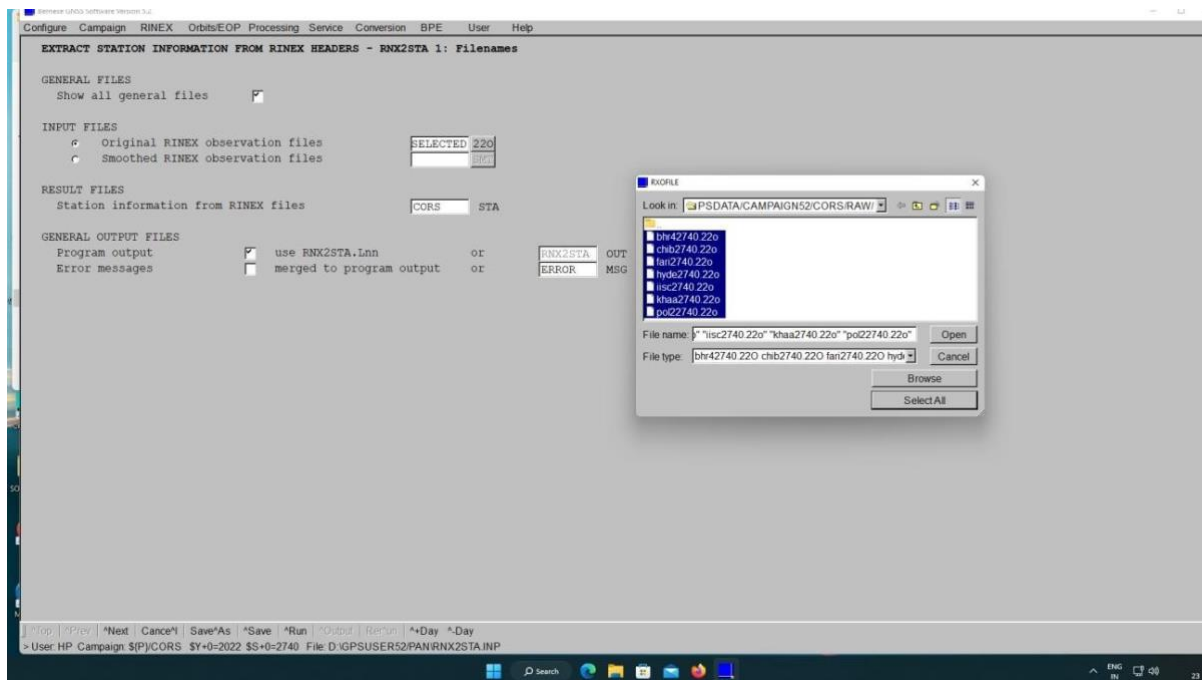
To create station information file:

For creating station information file-

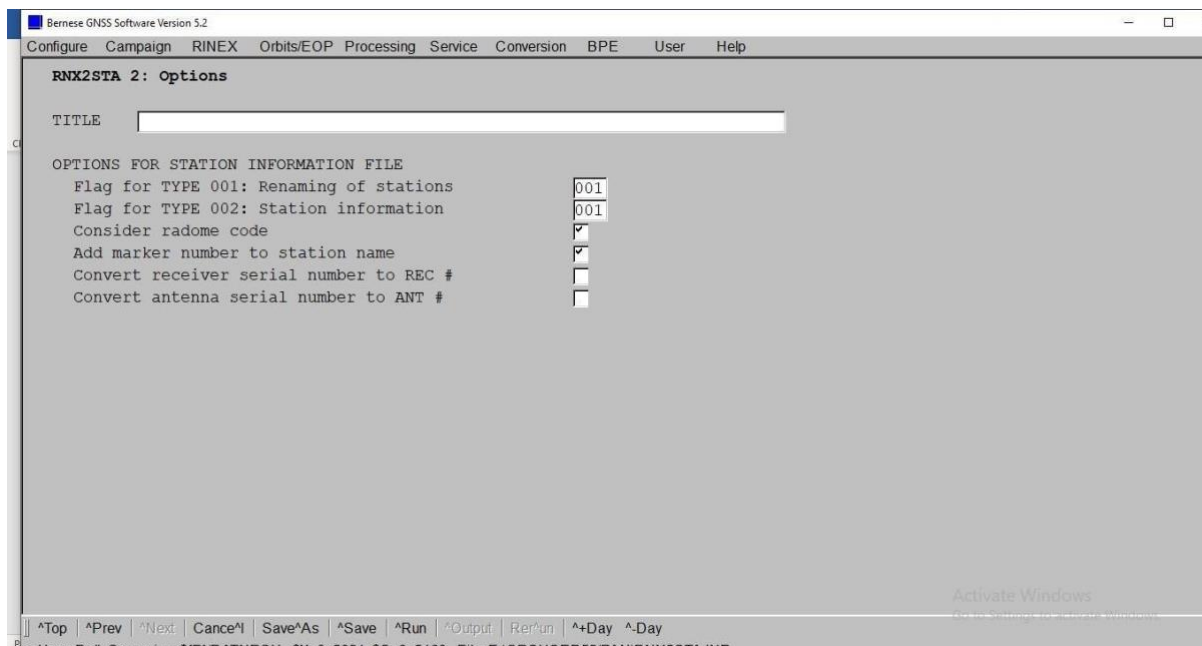
First paste .22o RINEX files [5 IGS station and 4 unknown CORS stations] for all 4 days to **CAMPAIGN52>CORS>RAW** folder.

In BERNESE, go to **Service>Station information file>Extract information from RINEX**

Select all files in Original RINEX observation files and name the Result file as **CORS** as shown below:



Click next.



Click Run.

NOTE: At the time of running this command, there may be some warning messages which can come. A warning message is shown with ### message. The warning doesn't hamper your processing and you can proceed to subsequent steps. While if *** message appears, it means there has been some error occurred while you are processing. You can't proceed to further steps without resolving the error.

A CORS.STA file will be created in *CORS>STA* folder.

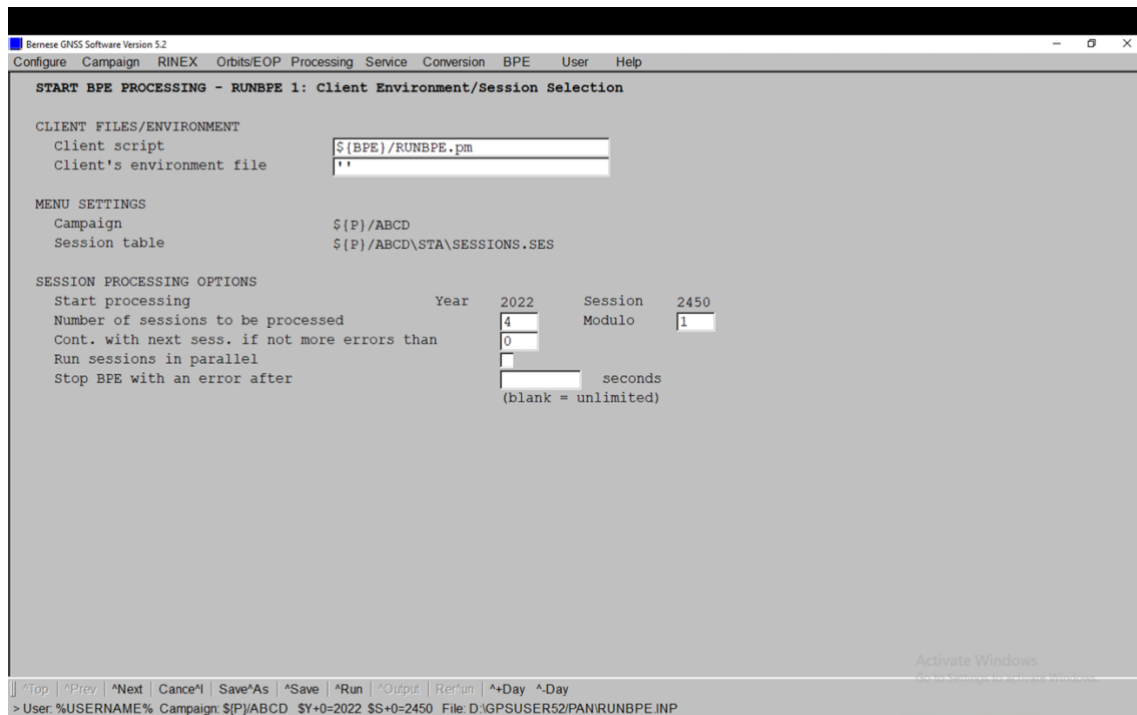
BPE Processing

We require to paste certain files in certain directories before running BPE.

Paste all .22o RINEX files (5 IGS + 4 CORS for all days) in [DATAPOOL>Rinex](#).

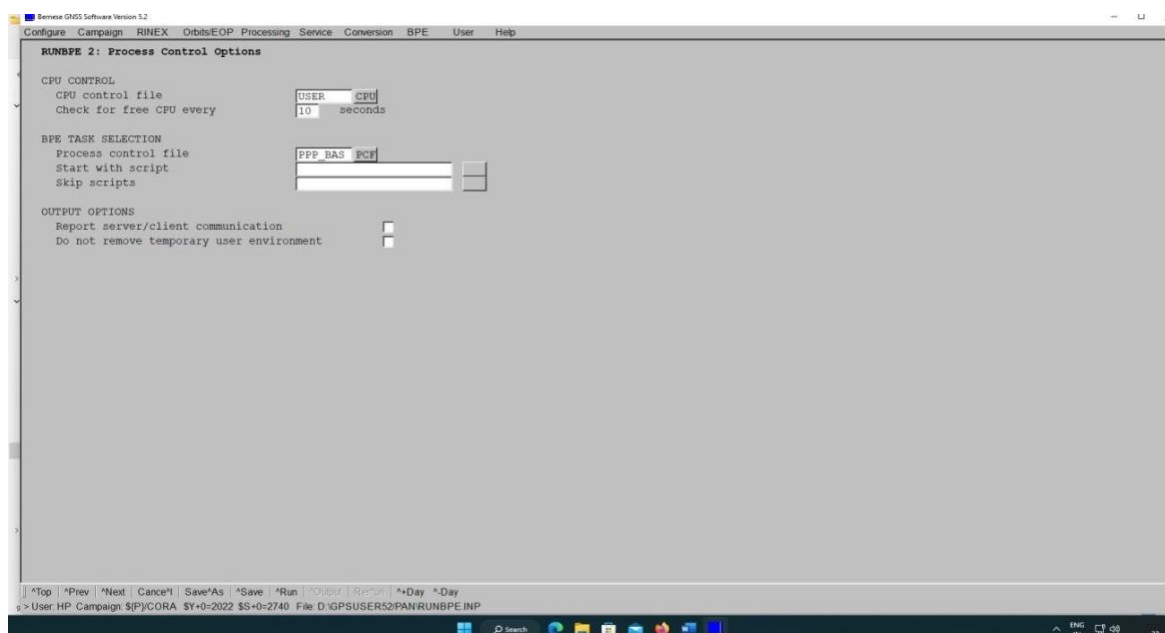
Paste CORS.STA & CORS.PLD in [DATAPOOL>REF52](#). Click on [BPE>Start BPE Processing](#).

The BERNESE interface will appear as shown below:

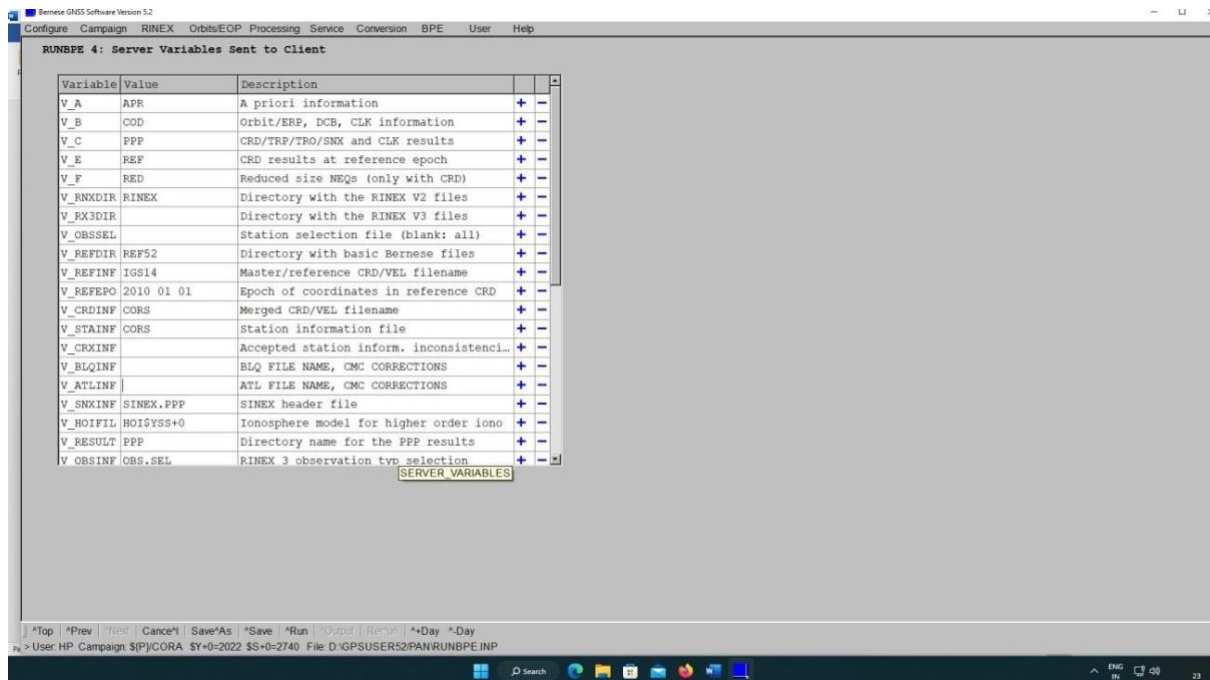


Click next.

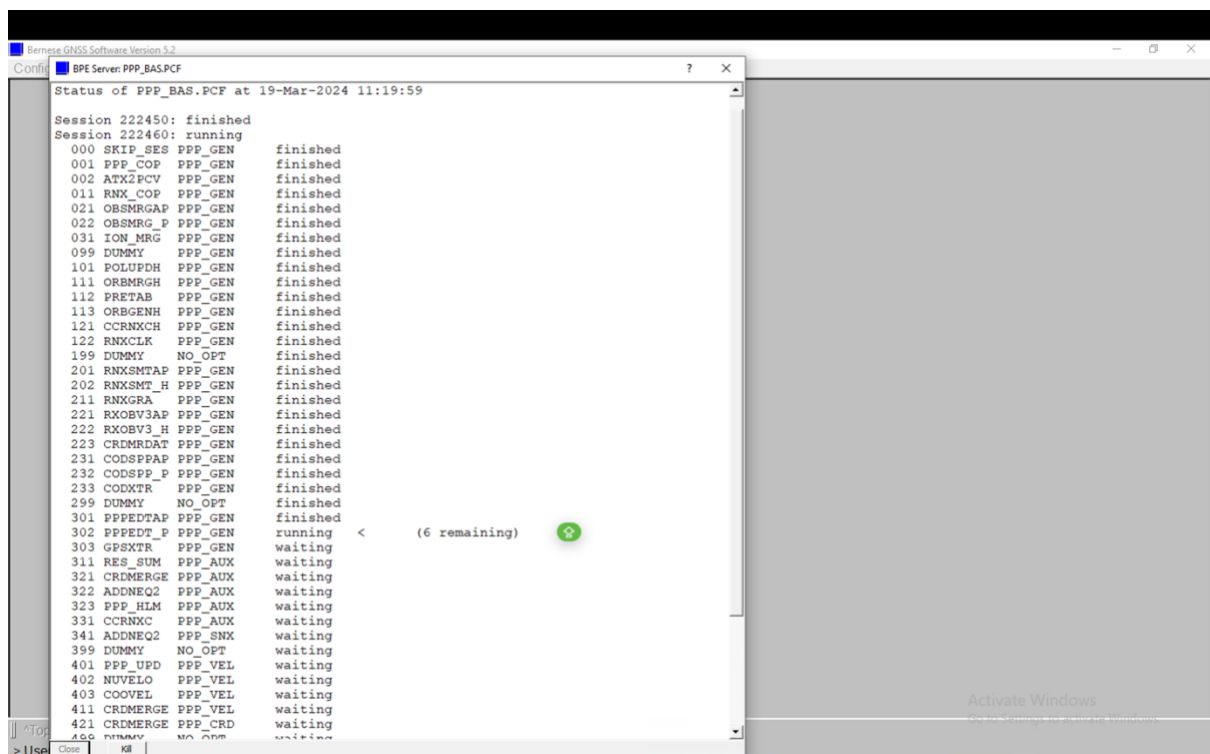
In the initial step, the PCF file used is [PPP_BAS.PCF](#). It is primarily used to generate the Precise Point Positioning (PPP) and Single Point Positioning (SPP) solutions. It is also used to generate necessary input files CORS.CRD, CORS.VEL, CORS.ABB which are mandatory files for running [RNX2SNX.PCF](#) and generate baseline processing results.



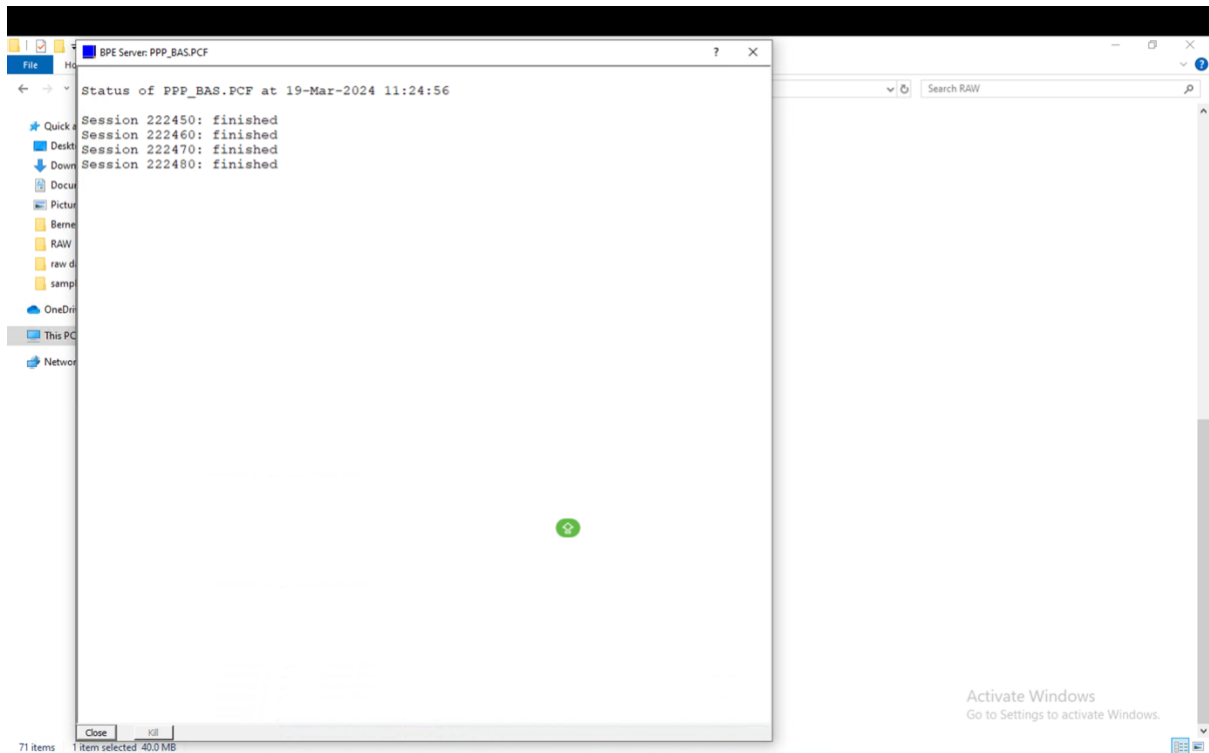
Click next.



Make changes accordingly as shown in the figure above and click Run.



If no error is done in the previous steps, BPE will run successfully and following results can be seen on screen.



If there is any error during the entire earlier process, then the BPE will fail by showing an error message. In this situation, go to [Campaign52>CORS>BPE](#). Use date modified option to know the latest *log file* generated. The log file message tells if any necessary files were missing in desired folder or if there is any other kind of error. An example of log file in BPE section showing the error is given below-

```
1212160_001_000 - Notepad
File Edit Format View Help
LOGFILE_HEADER
File E:\GPSDATA\CAMPAIGN52\RATNESH\STA\IGS14_R.CRD is up-to-date
File E:\GPSDATA\DATAPOOL\REF52\IGS14_R.VEL --> E:\GPSDATA\CAMPAIGN52\RATNESH\STA\IGS14_R.VEL copied
File E:\GPSDATA\DATAPOOL\REF52\IGS14.FIX --> E:\GPSDATA\CAMPAIGN52\RATNESH\STA\IGS14.FIX copied
File E:\GPSDATA\DATAPOOL\REF52\IGS14.SIG --> E:\GPSDATA\CAMPAIGN52\RATNESH\STA\IGS14.SIG copied
File E:\GPSDATA\DATAPOOL\REF52\RATNESH.CRD is not available (optional)
File E:\GPSDATA\DATAPOOL\REF52\RATNESH.VEL is not available (optional)
File E:\GPSDATA\CAMPAIGN52\RATNESH\STA\RATNESH.PLD is up-to-date
File E:\GPSDATA\DATAPOOL\REF52\RATNESH.ABB is not available (optional)
File E:\GPSDATA\CAMPAIGN52\RATNESH\STA\RATNESH.STA is up-to-date
File E:\GPSDATA\DATAPOOL\REF52\RATNESH.CLU is not available (optional)
File E:\GPSDATA\DATAPOOL\COD\COD21693.PRE cannot be provided (mandatory)
File E:\GPSDATA\DATAPOOL\COD\COD21697.ERP cannot be provided (mandatory)
File E:\GPSDATA\DATAPOOL\COD\COD21693.CLK cannot be provided (mandatory)
File E:\GPSDATA\DATAPOOL\COD\COD21693.CLK_30S is not available (optional)
*** copyRef: 3 mandatory files are missing
```

```
1222450_302_000.LOG - Notepad
File Edit Format View Help
>>> CPU/Real time for pgm "SNGDIF": 0:00:00.000 / 0:00:00.574

Call to SNGDIF failed:

*** SR DISTBS: NO CLUSTER FOUND FOR STATION: KASH 29
CLUSTER DEFINITION FILE : ${P}\ABCD\STA\ABCD.CLU
```

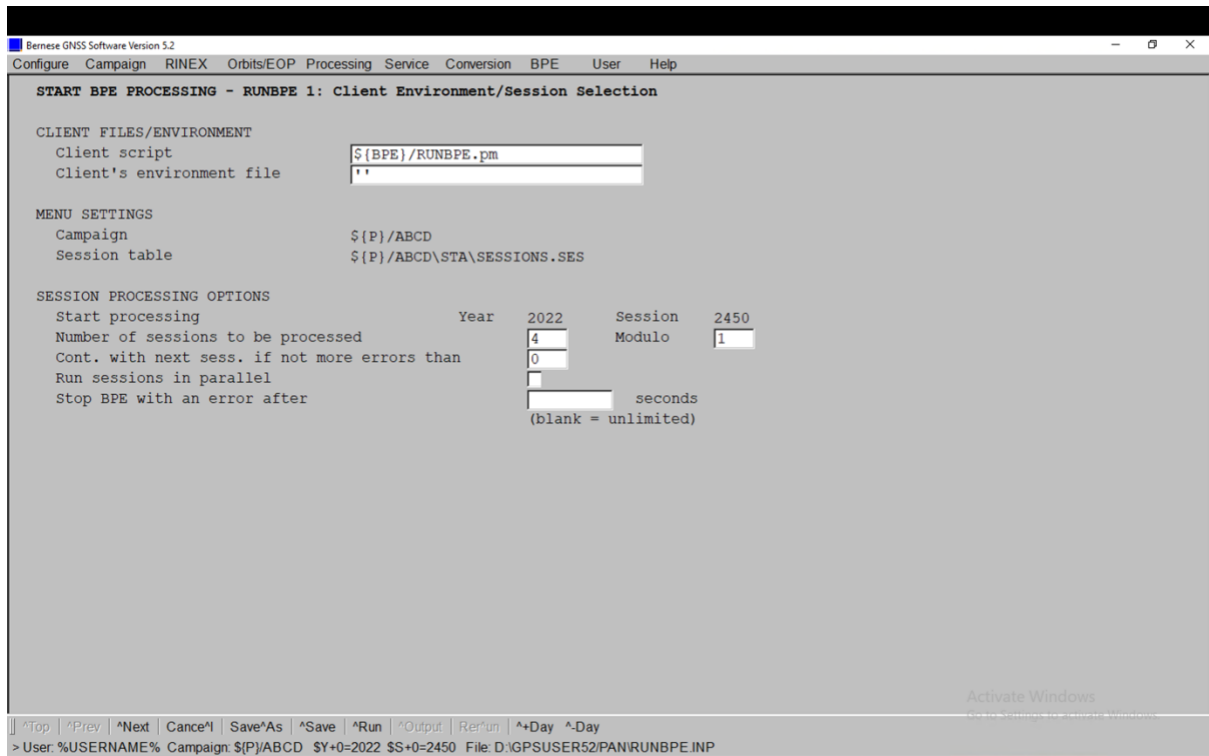
Sort out the errors by using information from log file and then again run the BPE. If the error is resolved, then the BPE will run without showing any error.

The output files can be seen in [Campaign52>CORS>OUT](#) where you can get the PPP and SPP

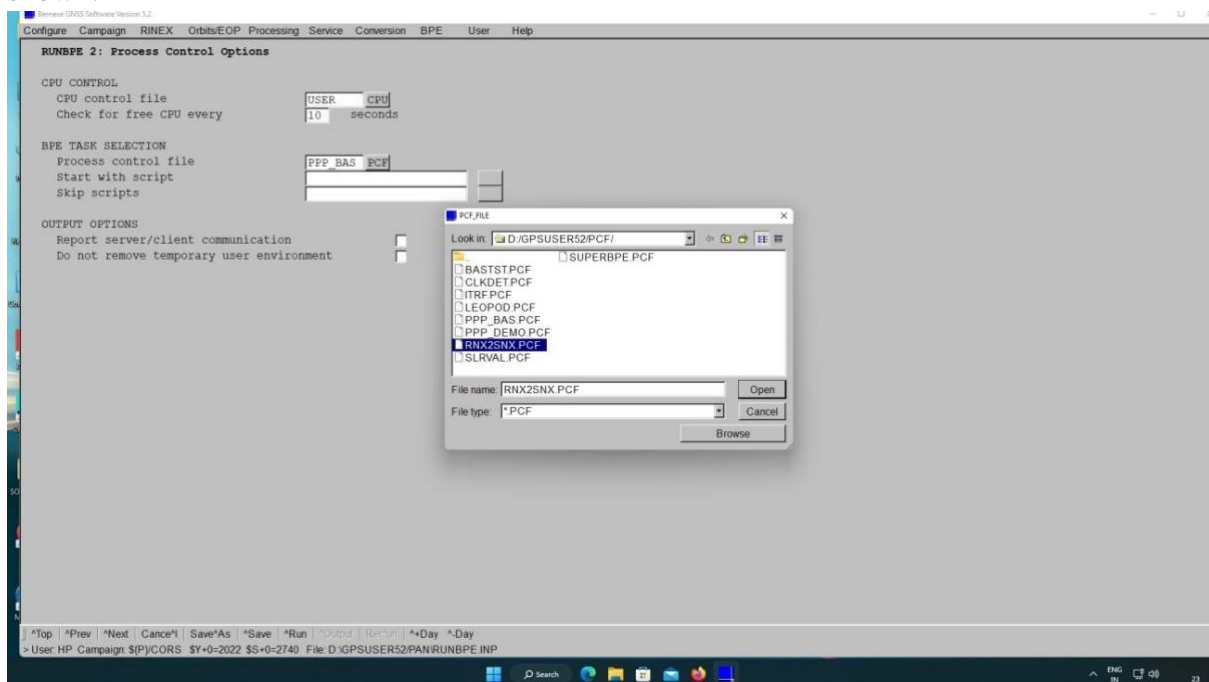
File Explorer window showing the contents of the 'OUT' folder in the path: This PC > DATA DRIVED (D:) > GPSDATA > CAMPAIGN52 > ABCD > OUT.

Name	Date modified	Type	Size
MRK2780KHAR.OUT	25-03-2023 19:05	OUT File	3 KB
MRK2780POL2.OUT	25-03-2023 19:05	OUT File	3 KB
MRK2780001.OUT	25-03-2023 19:14	OUT File	4 KB
MRK2780002.OUT	25-03-2023 19:15	OUT File	4 KB
NRG22780.OUT	25-03-2023 19:05	OUT File	2 KB
OR822780.OUT	25-03-2023 19:03	OUT File	13 KB
OR82780001.OUT	25-03-2023 19:13	OUT File	13 KB
OR822780.OUT	25-03-2023 19:13	OUT File	259 KB
P1_222780.OUT	25-03-2023 19:15	OUT File	51 KB
POL222780.OUT	25-03-2023 19:13	OUT File	3 KB
PPP2780KHAR.OUT	25-03-2023 19:04	OUT File	21 KB
PPP2780CHIB.OUT	25-03-2023 19:04	OUT File	21 KB
PPP2780FARI.OUT	25-03-2023 19:04	OUT File	21 KB
PPP2780HYDE.OUT	25-03-2023 19:04	OUT File	21 KB
PPP2780ISC.OUT	25-03-2023 19:05	OUT File	21 KB
PPP2780KHAR.OUT	25-03-2023 19:05	OUT File	21 KB
PPP2780POL2.OUT	25-03-2023 19:05	OUT File	21 KB
PPP222780.OUT	25-03-2023 19:05	OUT File	75 KB
SPMT2780001.OUT	25-03-2023 19:13	OUT File	9 KB
SPPT2780KHAR.OUT	25-03-2023 19:03	OUT File	8 KB
SPPT2780CHIB.OUT	25-03-2023 19:03	OUT File	8 KB
SPPT2780FARI.OUT	25-03-2023 19:03	OUT File	8 KB
SPPT2780HYDE.OUT	25-03-2023 19:03	OUT File	8 KB
SPPT2780ISC.OUT	25-03-2023 19:03	OUT File	8 KB
SPPT2780KHAR.OUT	25-03-2023 19:04	OUT File	8 KB
SPPT222780.OUT	25-03-2023 19:04	OUT File	8 KB
SPPT2780POL2.OUT	25-03-2023 19:04	OUT File	8 KB
SPPT222780.OUT	25-03-2023 19:14	OUT File	3 KB
SPPT2780001.OUT	25-03-2023 19:14	OUT File	40 KB
TAB222780.OUT	25-03-2023 19:13	OUT File	14 KB
VLL222780.OUT	25-03-2023 19:05	OUT File	14 KB
YTR222780.OUT	25-03-2023 19:18	OUT File	3 KB
PPP222780.PRC	25-03-2023 19:05	PRC File	60 KB
R25222780.PRC	25-03-2023 19:18	PRC File	58 KB
RES222780.PRC	25-03-2023 19:15	PRC File	16 KB
EDF2780KHAR.RES	25-03-2023 19:15	RES File	603 KB
EDF2780KHAR.RES	25-03-2023 19:04	RES File	197 KB
EDF2780CHIB.RES	25-03-2023 19:04	RES File	169 KB
EDF2780FARI.RES	25-03-2023 19:04	RES File	171 KB
EDF2780HYDE.RES	25-03-2023 19:04	RES File	153 KB
EDF2780ISC.RES	25-03-2023 19:04	RES File	171 KB
EDF2780KHAR.RES	25-03-2023 19:05	RES File	178 KB
EDF2780POL2.RES	25-03-2023 19:05	RES File	190 KB
EDF2780001.RES	25-03-2023 19:14	RES File	495 KB

Run BPE again. *BPE> Start BPE Processing*



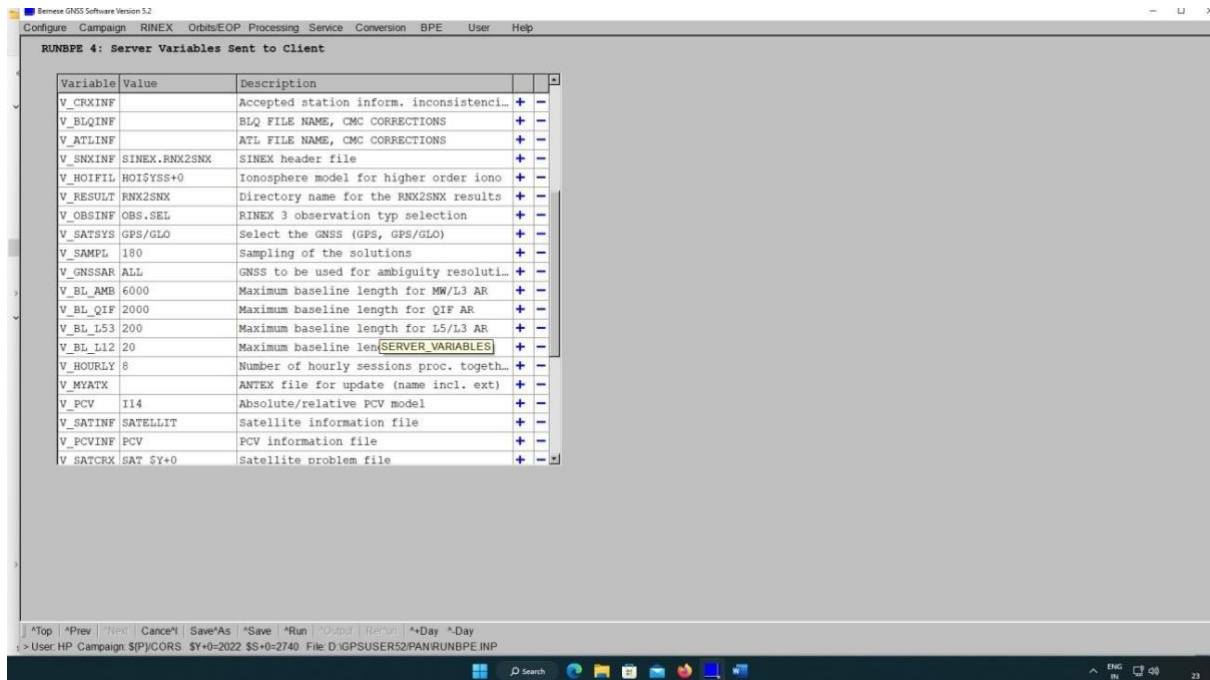
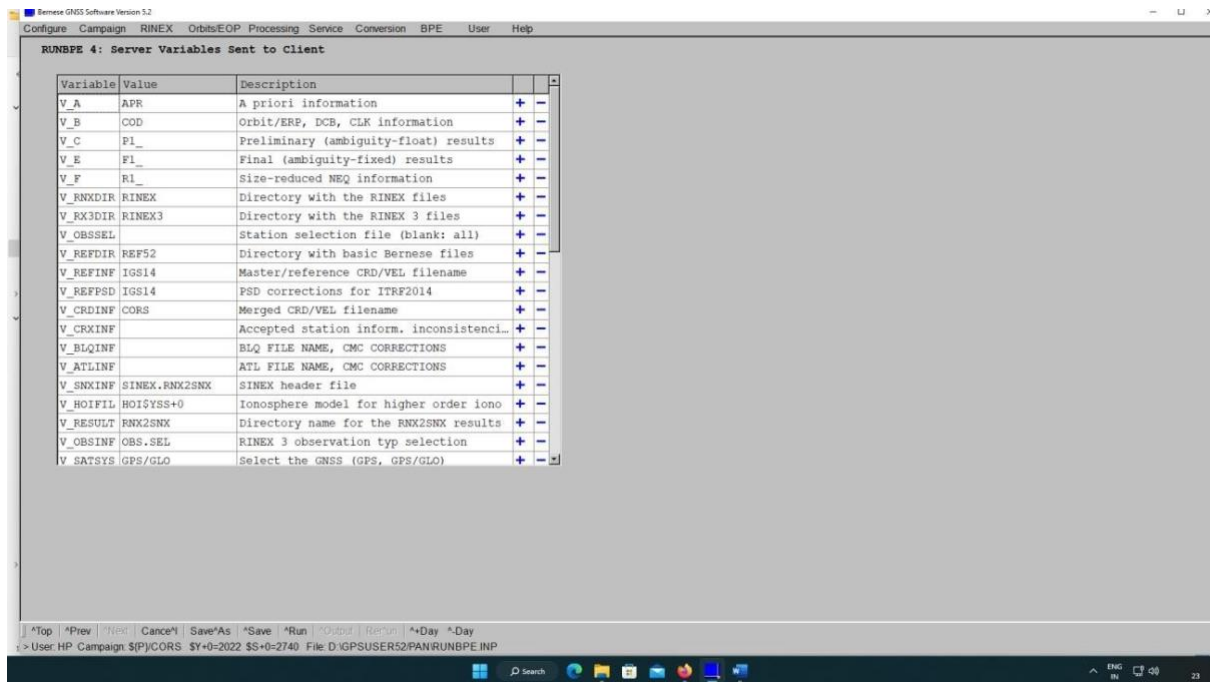
Choose the CPU control file as USER.CPU and Process control file as RNX2SNX.PCF as shown:



Click next.

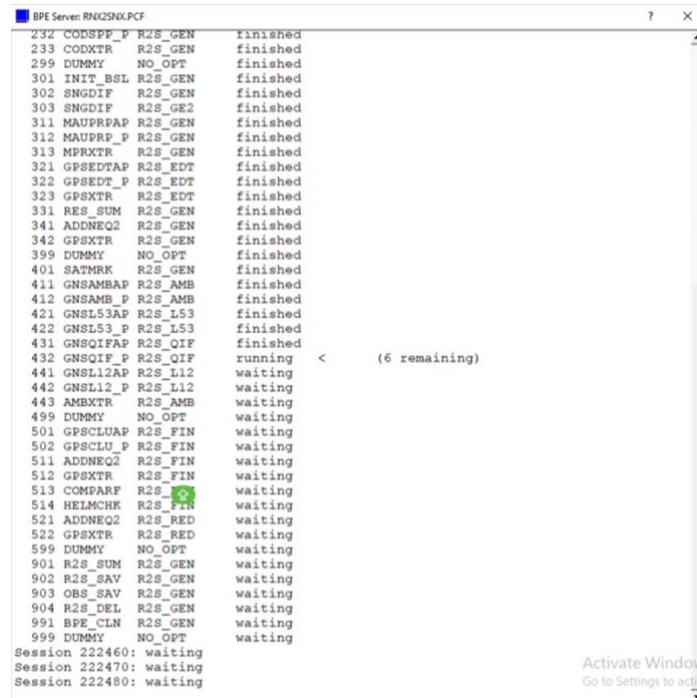
Choose Task ID as 1 and click next.

In RUNBPE 4 fill the entries in same way as shown below:



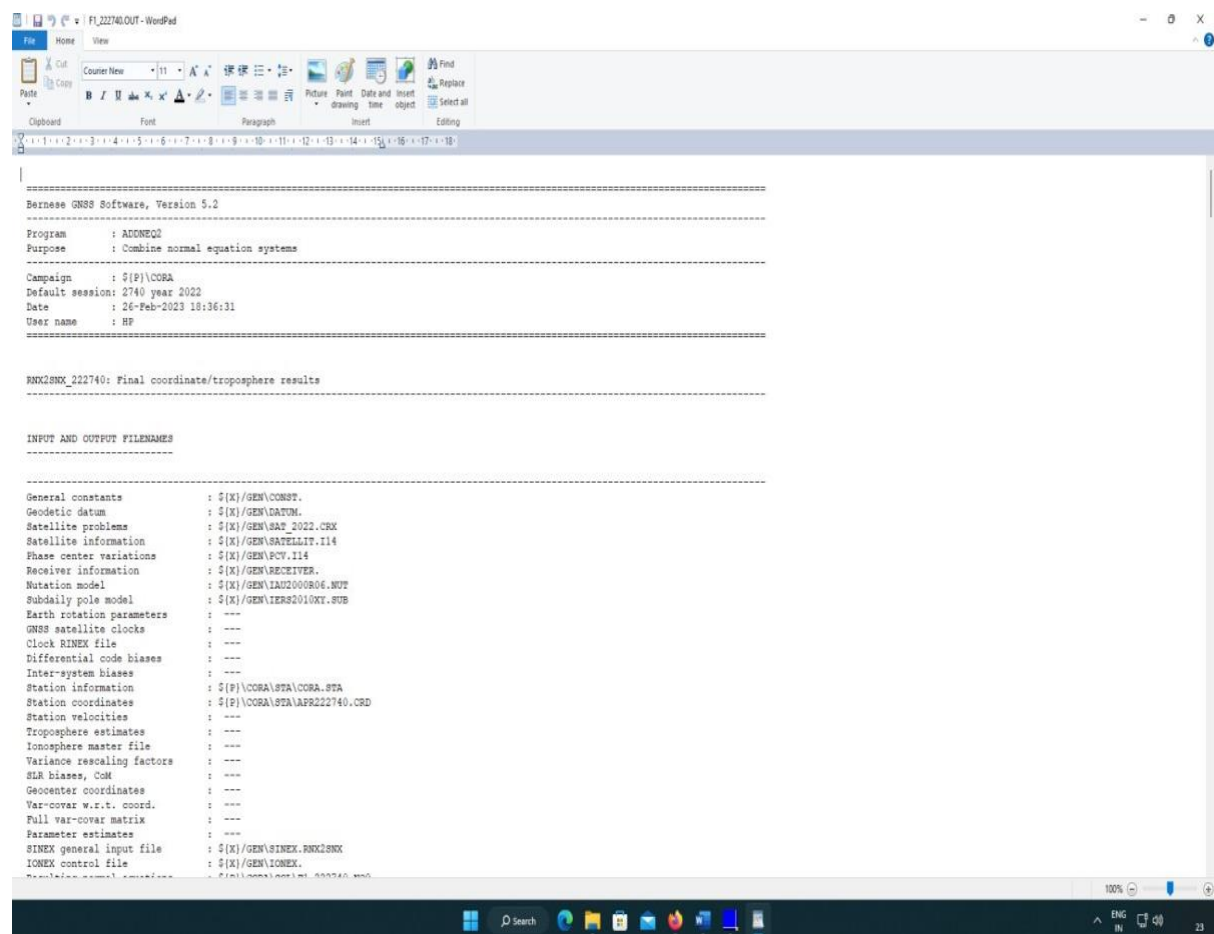
Click Run.

The BPE will start to run and if there are no errors in previous steps, the process gets finished after running for all days.



Wait till BPE is finished.

Click [Campaign52>CORS>OUT](#) to see the output of baseline processing. Click on date modified to find the result having name F1_....OUT.



Scroll down to get adjusted coordinates of unknown stations.

Extrapolation of coordinates to same epoch: The final coordinates obtained after daily data processing and adjustment refers to mid-day epoch of that particular day in which data has been processed. Refer to F1_22DOY0.CRD files in STA folder.

F1_222480.CRD - Notepad

File Edit Format View Help

RINEX25INX_222480: Final coordinate/troposphere results 19-MAR-24 12:46

LOCAL GEODETIC DATUM: IGS14 EPOCH: 2022-09-05 12:00:00

NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG
1	ABMF 97103M001	2919785.80332	-5383744.92713	1774604.89491	
2	ABPO 33302M001	4097216.51150	4429119.24093	-2065771.15701	
3	ADE1 50109S001	-3939182.95196	3467075.37435	-3613219.69994	
4	ADE2 50109S001	-3939182.95196	3467075.37435	-3613219.69994	
5	ADIS 31502M001	4913652.51533	3945922.88220	995383.56711	
6	AJAC 10077M005	4696989.19575	723994.81409	4239678.75599	
7	ALBH 40129M003	-2341333.13188	-3539049.52801	4745791.23244	
8	ALGO 40104M002	918129.09267	-4346071.33559	4561977.92569	
9	ALIC 50137M001	-4052052.84102	4212835.96425	-2545104.43957	
10	ALRT 40162M001	388042.31454	-740382.48370	6302001.99865	
11	AMC2 40472S004	-1248596.45668	-4819428.20394	3976505.91127	
12	AQML 49914S001	982296.54423	-5664607.22345	2752614.54028	
13	AREQ 42202M005	1942826.30778	-5804070.34093	-1796894.07263	
14	AREV 42202M005	1942826.30855	-5804070.34372	-1796894.07359	
15	ARTU 12362M001	1843956.29083	3016203.27071	5291261.80062	
16	ASCI 30602M001	6118526.04362	-1572344.83358	-876450.87391	
17	AUCK 50209M001	-5105681.59121	461563.99225	-3782180.92239	
18	BADG 12338M002	-838282.14382	3865777.32540	4987624.56273	
19	BAHR 24901M002	3633908.21777	4425275.70761	2799861.96706	
20	BARH 49927S001	1693644.56249	-4239067.59499	4439567.32651	
21	BART 73	1230484.55342	5440371.14488	3083361.56419	A
22	BHR1 24901M002	3633908.21707	4425275.70686	2799861.96724	
23	BHR2 24901M002	3633908.21707	4425275.70686	2799861.96724	
24	BILI 12363M001	-2321893.44605	560096.77530	5894691.65704	
25	BICO 32701M001	6333076.43047	270973.83123	704552.31938	
26	BIFS 21601M001	-2148744.64570	4426641.15722	4044655.79355	
27	BIMM 21616M001	-2154287.86138	4373439.95929	4098885.56830	
28	BORI 12205M002	3738358.14518	1148173.98503	5021815.92108	
29	BRAZ 41606M001	4115014.06607	-4550641.64941	-1741443.73858	
30	BREN 40473M001	-2112007.40691	-3705351.82350	4726827.01575	
31	BRFT 41602M002	4985393.48769	-3954993.48663	-428426.45963	
32	BRMU 42501S004	2304703.23655	-4874817.16991	3395187.07248	
33	BRST 10004M004	4231162.37044	-332746.36602	4745131.10532	
34	BRUS 13101M004	4027893.51005	307046.12787	4919475.30829	
35	BRUX 13101M010	4027881.33884	306998.79019	4919499.40793	
36	BSHM 20705M001	4395951.09387	3080707.27551	3433498.32804	
37	BUCU 11401M001	4093760.57146	2007794.11825	4445130.15621	
38	CAGL 12725M003	4893378.57883	772650.13202	4004182.37773	

Activate Windows
Go to Settings to activate Windows.

As a result of which the final coordinates of data refer to the different days. It is important to extrapolate the final coordinates of all days to a common epoch of a common date. This can be done by extrapolating the coordinates.

The option can be fetched from *Service>Coordinate tools>Extrapolate coordinates*.

hemese urico software version 3.0

Configure Campaign RINEX Orbits/EOP Processing Service Conversion BPE User Help

EXTRAPOLATE COORDINATES - COOVEL 1: Filenames

GENERAL FILES
Show all general files ☒

INPUT FILES
Input coordinate file
Input velocity file
PSD correction (ITRF14)

REFERENCE EPOCH
yyyy mm dd hh mm ss

RESULT FILE
Output coordinate file CRD
Stations without PSD corrections FIX

GENERAL OUTPUT FILES
Program output ☒ use COOVEL.Lnn or OUT
Error messages ☐ merged to program output or MSG

TITLE

Activate Windows
Go to Settings to activate Windows.

Top Prev Next Cancel Save As Save Run Output Rerun ^Day ^Day
User: %USERNAME% Campaign: \$(P)ABCD \$Y+0=2022 \$S+0=2450 File: D:\GPSUSER52\PANICOVEL.INP

Input F1_22DOY0.CRD file, the particular DOY velocity file. Give a common reference epoch, it is suggested that out of your 4 day dataset, the extrapolation can be done to 3rd day of your dataset at mid day epoch (12 00 00). Give the name of your result file and click run.

Do the same step for rest of the other 3 days .CRD files.

245.CRD - Notepad					
File Edit Format View Help					

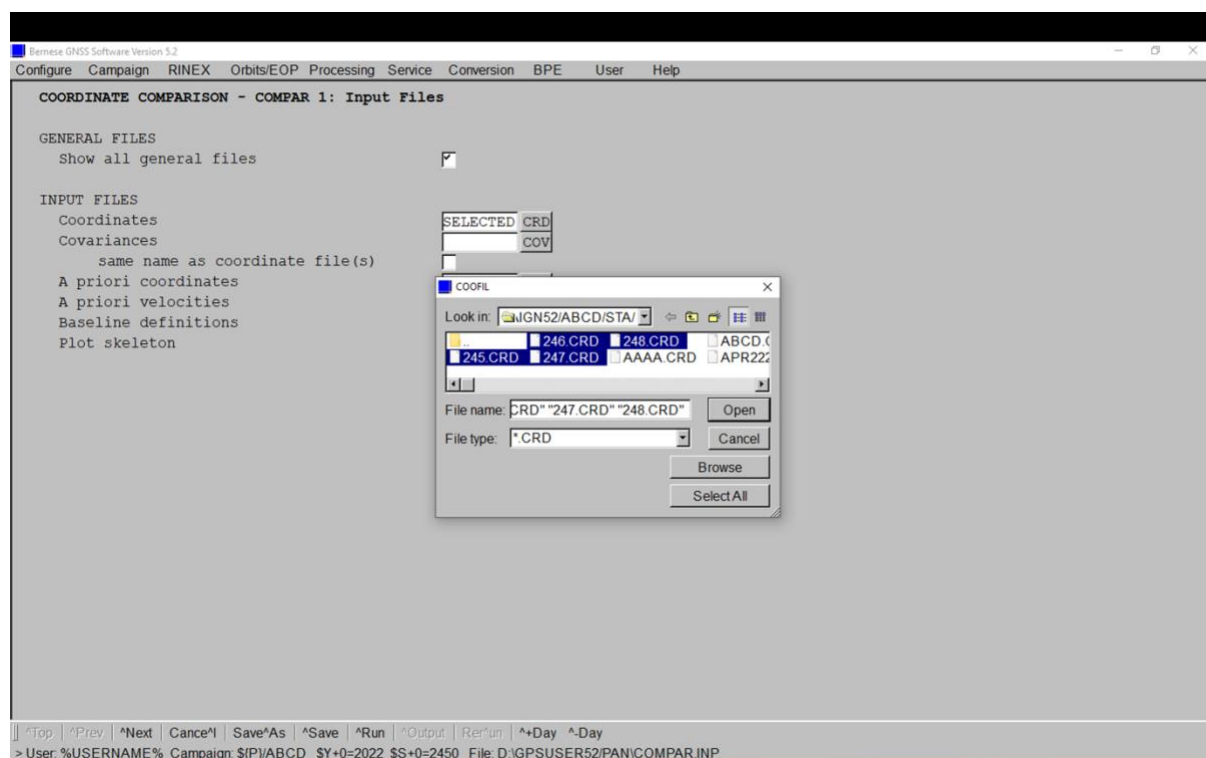
LOCAL GEODETIC DATUM: IGS14			EPOCH: 2022-09-04 12:00:00		
NUM	STATION NAME	X (M)	Y (M)	Z (M)	FLAG
1	ABMF 97103M001	2919785.80332	-5383744.92713	1774604.89491	
2	ABPO 33302M001	4097216.51150	4429119.24093	-2065771.15701	
3	ADE1 50109S001	-3939182.95196	3467075.37435	-3613219.69994	
4	ADE2 50109S001	-3939182.95196	3467075.37435	-3613219.69994	
5	ADIS 31502M001	4913652.51533	3945922.88220	995383.56711	
6	AJAC 10077M005	4696989.19575	723994.81409	4239678.75599	
7	ALBH 40129M003	-2341333.13188	-3539049.52801	4745791.23244	
8	ALGO 40184M002	918129.09267	-4346071.33559	4561977.92569	
9	ALIC 50137M001	-4052052.84102	4212835.96425	-2545104.43957	
10	ALRT 40162M001	388042.31454	-740382.48370	6302001.99865	
11	AWC2 40472S004	-1240596.45668	-4819428.40394	3976505.91127	
12	AQML 49914S001	982296.54423	-5664607.22345	2752614.54028	
13	AREQ 42202M005	1942826.30778	-5804070.34093	-1796894.07263	
14	AREV 42202M005	1942826.30855	-5804070.34372	-1796894.07359	
15	ARTU 12362M001	1843956.29083	3016203.27071	5291261.80062	
16	ASCI 30602M001	6118526.04362	-1572344.83358	-876450.87391	
17	AUCK 50209M001	-5105681.59121	461563.99225	-3782100.92239	
18	BADG 12338M002	-838282.14382	3865777.32540	4987624.56273	
19	BAHR 24901M002	3633908.21777	4425275.70761	2799861.96706	
20	BARH 49927S001	1693644.56249	-4239067.59499	4439567.32651	
21	BART 73	1230484.55352	5440371.14491	3083361.56409	A
22	BHR1 24901M002	3633908.21707	4425275.70686	2799861.96724	
23	BHR2 24901M002	3633908.21707	4425275.70686	2799861.96724	
24	BILI 12363M001	-2321893.44605	560096.77530	5894691.65704	
25	BICO 32701M001	6333076.43047	270973.83123	704552.31938	
26	BIFS 21601M001	-2148744.64570	4426641.15722	4044655.79355	
27	BIMM 21616M001	-2154287.86138	4373439.95929	4098805.56830	
28	BOR1 12205M002	3730358.14518	1148173.98503	5021815.92108	
29	BRAZ 41606M001	4115014.06607	-4550641.64941	1741443.73858	
30	BREW 40473M001	-2112007.40691	-3705351.82350	4726827.01575	
31	BRFT 41602M002	4985393.48769	-3954993.48663	-428426.45963	
32	BRMU 42501S004	2304703.23655	-4874817.16991	3395187.07248	
33	BRST 10004M004	4231162.37044	-332746.36602	4745131.10532	
34	BRUS 13101M004	4027893.51005	307046.12787	4919475.30829	
35	BRUX 13101M010	4027881.33884	306998.79019	4919499.04793	
36	BSHM 20705M001	4395951.09387	3080707.27551	3433498.32804	
37	BUCU 11401M001	4093760.57146	2007794.11825	4445130.15621	
38	CAGL 12725M003	4893378.57883	772650.13202	4004182.37773	
...

Comparison of coordinates:

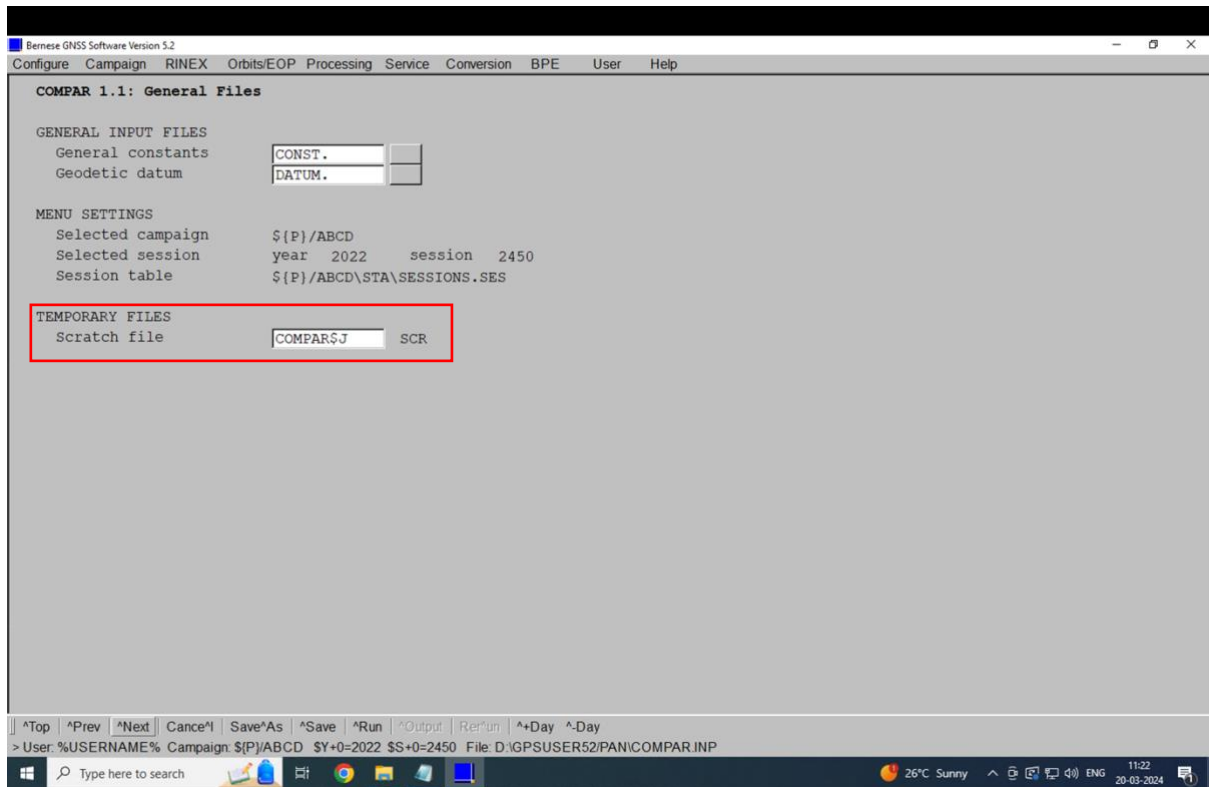
It can be done based on the differences between the coordinates and the RMS associated with it.

Go to *Service>Coordinate tools>Coordinate comparison*.

Select the extrapolated coordinates of 4 days computed from the last step.

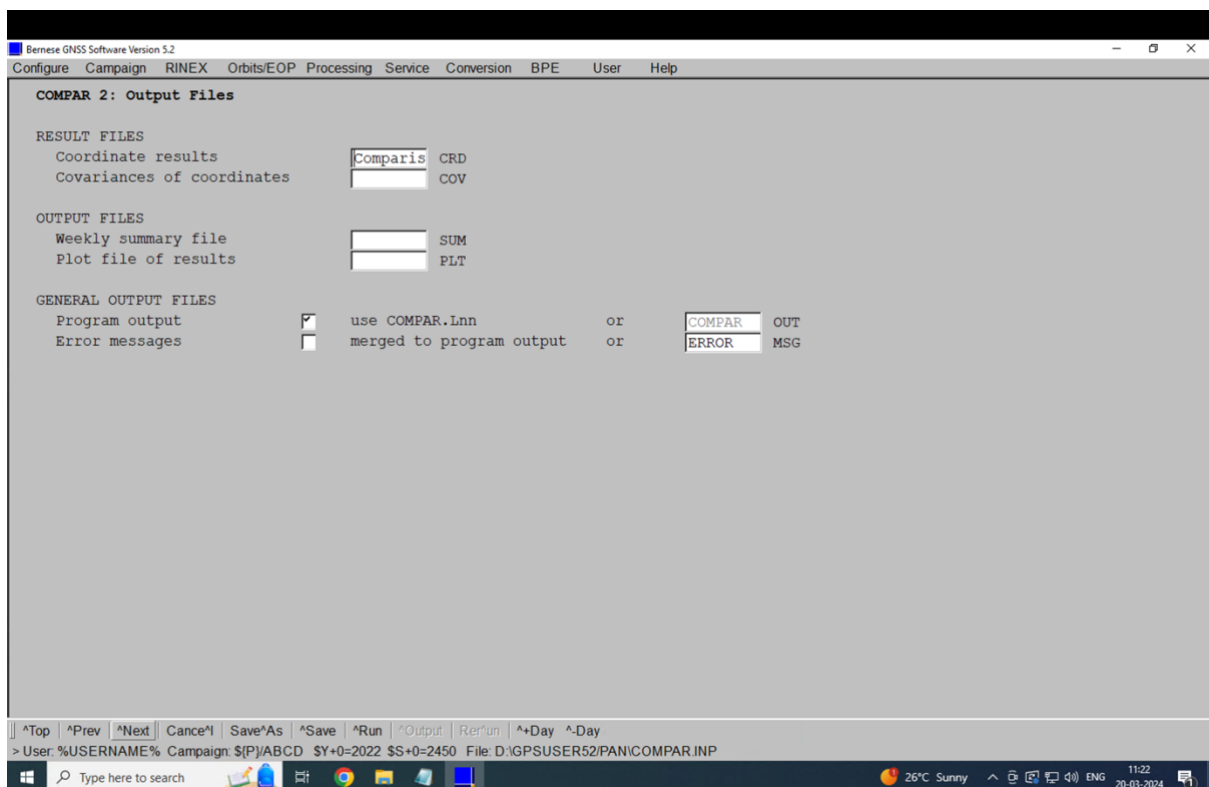


Next.



Next.

Give the name of output file.



Run.

There will be two outputs. One comparison file COMPAR.L0X which have the information about the comparison between coordinates of a station for different days. The other file is the Comparison.CRD present in STA directory which contains the final coordinates for all stations by combining 4 days of coordinates.