METRON

SCIENTIFIC SOLUTIONS

CGTRK Scrub for Sim
V1.1

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CONTENTS

LIST OF ALGORITHMS

No table of figures entries found.

LIST OF CODE

No table of figures entries found.

LIST OF FIGURES

No table of figures entries found.

LIST OF EQUATIONS

No table of figures entries found.

LIST OF SNIPPETS

No table of figures entries found.

LIST OF TABLES

DOCUMENT REVISION HISTORY

Version Date	Comments
Sep 04, 2015	
Sep 14, 2015	Formatting Issues

1.   INTRODUCTION AND SUMMARY

These are the notes that I took during the meeting of Sep 3, 2015, with Jack Frost on the selected items in CGTRK. The tasks discussed at this meeting all related to back-end work on Sim. Another document discusses the issues related to Planner.

Some issues (notably ESS) concern both SIM and Planner. These are discussed in this document.

There are two major efforts for this scrub; one is 2788 for Planner, and the other is ESS for both. The difficulties with ESS are:

Data Input: xml specifications
Evaluation of a Sortie's POS value for a particular (moving) particle
Combining ESS with NVG

TABLE 1: MAJOR ESS ISSUES

2.   BACK-END SIM

2.1   ESS ISSUES

2.1.1   2639: HELO SENSOR

Quoting the first paragraph of the discussion from within CGTRK itself, we have the following:

…LRCs and the way we use them in SAROPS, especially the latter when use them as functions of true range from the ends of search legs, are not sufficient for proper search planning and evaluation for the new sensors (radar, ESS, and whatever else may be on the horizon). It does not look like the idea of combining multiple sensor LRCs into a single "composite" LRC is going to work, either. The basic problems are:

Similar to Planner's 2788, this is something of an "umbrella" entry for ESS.

2.2   OTHERS

2.2.1   1800: DUP SEARCH OBJECT TYPES

The basic example for this is splitting a raft into "raft-with-reflector and "raft-without-reflector." JRF will add more.

2.2.2   1618: SIMULATOR RIVER

This is solved. ASA now sends the simulator explicit instructions on slippery/sticky, and river-type interpolation. Furthermore, the "slippery/sticky" situation is no longer yes-or-no. There is a "proportion-of-sticky" parameter that's given to SIM now.

2.2.3   1671: VOYAGE DISTRESS TIME INTERVAL

This duplicates 2691.

2.2.4   2691: VOYAGE WITH DISTRESS TIME

The rationale for having a distress time interval is a "Man Overboard" case, when the time the person was last seen and the first time that he was noticed as missing, are known.

2.2.5   1609: HIGH LATITUDE

The Simulator package doesn't work well at high latitudes, especially if the AOI contains a pole. Since this is currently a rare occurrence, our "fix" should be to notice that we are (e.g.) about 80 degrees and politely inform the user that SIM's high-latitude work is still under development.

2.2.6   1559 AND 1558: SIM COULD AUTOMATICALLY ADJUST PARTICLE COUNT AND/OR TIME INTERVAL

Based on the case's characteristics, SIM could determine whether it is appropriate to use a large number of particles per scenario, or have detailed time intervals. This is most likely to occur on the GUI side.

2.2.7   WRITING THE SHP FILES FOR GSHHS AND ETOPO

If some case has these Shp Files open within ArcMap, Sim cannot delete them and re-write them, which it would do if the Simulator is re-run. Some kind of error mechanism should communicate this to the user.

2.2.8   1025: WRITE ENVIRONMENTAL DATA META-DATA TO FILE.

There are several constants that could be listed when SIM is finished. These include standard deviation for both winds and currents, half-life for both, time-interval, slippery/sticky proportion, etc.. These should be stored as part of the case data, and displayed in a table.

2.2.9   1016: AUTO EXPORT

Obsolete after the database implementation.

2.2.10   715: PROBABILITY VIEWER

There are many ways of conditioning the data. Examples include "Object-Type," "Scenario," "Landed," and "Distress." The user should be able to select characteristics from each category and see the probability grid for the resulting set of particles.

2.2.11   611: UPDATE GSHHS

Based on the case's characteristics, SIM could determine whether it is appropriate to use a large number of particles per scenario, or have detailed time intervals. This is most likely to occur on the GUI side.

The current effort is to incorporate CUSP and find better data for the upper Hudson Valley (2696). Furthermore, there is a path for improving this data.

2.2.12   587: ADD DEPTH CONTOURS

This has nothing to do with ETOPO, and so is not relevant to the back-end processing of SIM. It simply means that contours should be displayed.

2.2.13   571: REDUCE RUN EDS DATA

There are two ways of attacking this.

1. Reduce the single "cube" of data necessary. Perhaps a call to SIM could give an estimate.
2. Have SIM read in small cubes as needed.

2.2.14   343: ADDITIVE HAZARDS

We probably don't want additive weights, but something less dramatic than multiplication is appropriate for multiple overlapping hazards.

2.2.15   337: SIMULATOR EXCLUSION ZONES

Similar to land processing now, simply define zones that the particles cannot start at.

2.2.16   336: SIM PARTICLES

This duplicates 1559.

2.2.17   232: SMART AOI

This is largely a duplicate of 1558. 1558 is a little more general, and allows for other ways of solving the problem of "too big a single cube."

2.2.18   192: IMPORT SRU TRACK DATA FOR PREVIOUS SEARCHES

Need to work on smoothing and filtering data.

2.2.19   163: SAILBOAT VOYAGE

Code is in place. This requires Smart AOI. This still has to be tested and developed.

2.2.20   144: SUPPORT FOR ELLIPTICAL LKP

Some work still needs doing for this, but it is nearly done. There was a known bug, but right now, but it appears to be fixed, and we are primarily lacking test cases and xml specs.