31 May, 2013

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**Progress Report – 1 May 2013 – 31 May 2013**

Contract Number: HSHQDC-06-D-00022

Contract Number 7500097279

Order Number: HSCG23-07-J-TED150

Task Order – Performance Work Statement (PWS) 1.12

Attachments: (1) SAROPS subcontractor financial reports

1. **SAROPS Systems Component Services Tasks**
   1. **Activities completed:**
      1. **Worked with Rob and Judy to get a streamlined set of test cases to test features of Simulator that are not used often. Had done this for Judy, but Rob gave me a new set of cases. I put them in my “list of cases to check” and wrote up what I expect to see. Wrote up 24 cases. Will try to cut back on these.**
      2. **Showed cases to Jack who gave me one more but essentially approved the idea of having a relatively few number of cases to run through.**
      3. **Land:**
         1. **Got new data from ASA and tried to run the program that creates new land files. Found three old bugs, each of which gets hit very rarely and was difficult to track down.**
         2. **Also updated the Gshhs data; NOAA has a 1/1/13 version now. Found many spikes in that data and communicated that to Paul Wessel, but my code fixes those anyway.**
         3. **Built a new land set. Staten Island is now offshore and Puget Sound has now been expanded. The New Jersey side is better and the Hudson gets closer to Albany.**
      4. **Looked into an SIR about voyages. Some particles were “missing” in SAROPS reports. They weren’t missing but simply still underway, and SAROPS loses track of particles that are still underway. I checked this out, noticed that it was working as expected, double-checked with Jack to make sure that that was the idea, and then put in one more attribute in the log file to record, for each time step, “number underway” for the underway object type.**
      5. **Built another installer set, including the dll for use by Jim.**
      6. **Experimented with the new data set and ended up bumping the threshold for the max resolution to 600 miles from 240.**
      7. **Worked on cleaning up as per action item. Focused on the Particle File and did get rid of some variables. The Particle File was originally written when we were still feeling our way around NetCdf files, and clean-up was in order. In addition to changing the structure of the file slightly (it’s still backward-compatible, but that’s not an issue since I never read a Particle File), I overhauled the code and it’s much easier to understand now. This heavily affected two files with 3000 lines of code, and more lightly affected several others.**
      8. **Wrote a document giving details on Land Resolution selection and Land-jar creation.**
      9. **POS fire drill. Reproduced the problem, noticed that the bravo search’s ending POS truly is 98%, as expected, but only at the end of the file. Currently, the thought is that the reports are not being built using the last time step, but we await further word on that as we try to run this issue into the ground.**
      10. **A “bug” was exposed because of this. Probabilities are updated as of CPA. I’m supposed to apply the update to the timestep *after* the CPA. I had been applying them to the timestep *before* CPA. Fixed in 1.5. Left as is in 1.4.**
      11. **Answered questions from Jack concerning the relationship between updated probabilities, a completed search’s leg’s time interval, and a particle’s time interval. The latter is the time step of the simulator.**
      12. **Judy found a bug in the new planner. It involved a new way of terminating a planner run and so it wasn’t a big surprise that there was a glitch. I seem to have fixed that.**
      13. **Revised my land processing paper after some feedback from Jim. Submitted new land jar, as well as all input files for the creation of the land jar. Responded to questions about the land.**
      14. **Bad bug about subsequent searches. When I went from 1.4 to 1.5, I cleaned up quite a bit of code. Polygons in general are stored as 2-dimensional objects and sometimes (as in 1.4) the reference point from which the polygons coordinates are offsets from, can get “off.” For example, suppose you have a triangle (2,3), (3,5), (4,0). That triangle is “with respect to” some reference Lat/Lng. In 1.4, it was possible to ask if the triangle contained (2,2), with (2,2) being the offsets from a different Lat/Lng. In 1.5 that’s not possible, but 1.4 does not benefit from that cleanup. To avoid using 1.5 code for 1.4, I did not re-do the cleanup in 1.4, but had to chase down the uses of the “contains” routine to make sure that the reference Lat/Lngs agreed. There was also a bug in 1.5, but it was found and apparently fixed very quickly.**
      15. **Wrote a document describing inputs/outputs to Sim, and proposing cleanup. Met with Judy (via phone) and Jack (who was here) to go over cleaning up the output from Simulator; namely the particle file (we’ll drop two variables), the Stats file (probably eliminate it), and the Log file (some fields will be dropped, comments will be inserted to explain why we are logging every time step). Will revise document as per the meeting.**
   2. **Travel completed:**
      1. **None.**
   3. **Upcoming activities scheduled:**
      1. **Finish Sim Output Cleanup (and make recommendations about Sim Input cleanup), and write another document about planner output.**
   4. **Travel planned:**
      1. **None**
   5. **Concerns or recommendations:**
      1. **.**

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| **Name** | **Activity Worked** | **Hours Worked** | **Hourly Cost** | **Total Cost** |
| Kratzke (New Contract) | Coding/Doc/Travel | 110 | 255.16 | 28607 |
| Stone | Doc | 0 | 223 | 0 |
| L White (Tech Writer) |  | 0 |  | 0 |
|  |  |  |  |  |
| **Totals** |  | 110 |  | 28607 |
|  |  |  |  |  |