28 Jul, 2011

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**Progress Report – 1 Jul 2011 – 31 Jun 2011**

Contract Number: HSHQDC-06-D-00022

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. **Wrote up June's Monthly and attended TWGs.**
      2. **Worked through two cases where depth was apparently not working. I enhanced the internal gui to display the depth as the cursor moves. Depth changes to negative as we cross onto land, and otherwise seems to be working. There really are isolated deep spots in the questionable areas. They might not agree with nautical charts, but the code is working.**
      3. **Fixed a bug that Jack found with voyages and anchoring. I had this problem before with LKPs; it should be impossible to be “anchored on land.” After fixing it, it is. In both cases, I used the enhanced gui to demonstrate the fix.**
      4. **Etopo2 has pretty questionable data in many places and has no data for the Great Lakes. Etopo1 is actually a slightly different format, is better, and it does have the elevation above sea-level for the Great Lakes’ floors. I used Etopo1, together with some values of the Great Lakes’ mean surface elevation above sea-level to get the Great Lakes anchoring working. Clearly, we have to move to Etopo1 as soon as we can. It’s more accurate and fixes the Great Lakes problem. I put the elevation values, together with some polygons that surround the Great Lakes, into a file that I read at runtime. If a point is “wet” as per GSHHS and in one of these Great Lakes polygons, I adjust the depth according to that lake’s surface’s sea level.**
      5. **I noticed and fixed a bug involving constant currents and/or winds.**
      6. **I sped up the program for the cases where the environmental data is provided on a grid (even if it’s irregular) of Lat/Lngs. I noticed one case where the data is on a grid, but the grid is slanted. So I needed to recognize that situation quickly and go back to the old way of doing things.**
      7. **Put together an initial plan for how to implement a “smart aoi” in a thread safe way. Using parallel processing, I cannot just say “this particle needs more data; go get it” unless I synchronize the collection of retrieved boxes. That much synchronization would be too costly.**
      8. **Responded to questions about river cases. Noticed that the standard deviations were not being computed correctly. Fixed that.**
      9. **Responded to a planner case. 3 Srus seemed to be a funny case. When I look at it in the engineering gui, it’s fine. Still, I had to analyze and examine the case. I believe that I’m the only one who uses the internal gui so I’m the only one who can understand what planner does.**
      10. **Followed a thread between Netsch, Hanks, and Wilson concerning (although they didn’t know this) “jumps” during the algorithm. So I examined that part of my algorithm and modified the code ever so slightly to improve the “jumping” mechanism. This is what planner does when small moves don’t improve anything. The changes had to do with how I grid the probability distribution when looking for a new place to put an SRU, and also how I treat “competing polygons” when looking for a legal place to put the SRU that I’m “jumping.”**
          1. **Also made a suggestion to clarify what the discussion was about; we have to restrict the size of the entire *move* and not just keep from making a jump. Indeed, when overlap is cleared, the movement can be as big or bigger than a jump.**
      11. **Worked with Jack on understanding POS reports. I’m reporting things correctly and I have a separate section in my results file that is not part of the POS report, but it does describe the numbers of the optimization problem being solved. Went over that with Jack, and researched the computation of these numbers.**
      12. **Have now started to use WSDL/SOAP and should be able to access EDS next month. This will allow the simulator to use a “Smart AOI.”**
   2. **Travel completed:**
      1. **None**
   3. **Upcoming activities scheduled:**
      1. **Respond to bugs for code freeze. I hope I get them soon enough.**
   4. **Travel planned:**
      1. **None planned**
   5. **Concerns or recommendations:**

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| **Name** | **Activity Worked** | **Hours Worked** | **Hourly Cost** | **Total Cost** |
| Kratzke | Coding/Doc/Travel | 92 | 230 | 21160 |
| Stone | Doc | 0 | 223 | 0 |
| Vergamini | Meeting/Consulting | 0 | 223 | 0 |
| L White (Tech Writer) |  | 0 |  | 0 |
|  |  |  |  |  |
| **Totals** |  | 92 |  | 21160 |
|  |  |  |  |  |