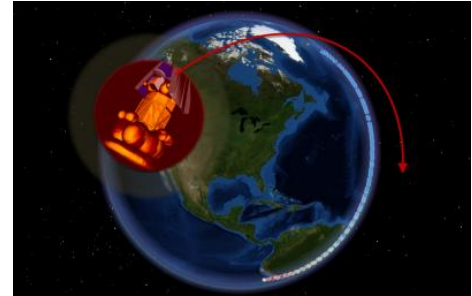**Date:** *Tuesday April 17, 2012, 12(Noon) – 1:00pm*
(Bring a lunch, limited Snacks/Beverages available).
Location: *LVOC (T6475), Yosemite Room*
LLNL, Livermore, CA.
Technical Presentation:

"Hitchhiker's Guide to the Galaxy…
Are you in the way?"
-aka-
"Where in the world is Phobos-Grunt?
How one predicts the re-entry of space junk"

Recently the Russian satellite Phobos-Grunt tumbled out-of-control back to Earth. During the re-entry event many people worked quickly to determine where the craft would impact our planet. Finding the re-entry trajectory of an uncontrolled satellite is a challenging problem. Tracking data may be limited, atmospheric phenomena including solar and geomagnetic activity must be taken into account, and the satellite's construction - and its destruction - are complex and typically poorly understood.

Come learn how this team used a blend of mathematics, physics, computations and geospatial modeling to solve these problems – and find out: Were YOU (nearly) in the way?

The team will also show an array of visualizations.

Talk will include:
- Overview of uncontrolled satellite re-entry
- Physics governing drag-perturbed orbits
- Methods used for modeling re-entry of Phobos-Grunt
- LLNL orbital propagator model
- Application of LLNL GIS visualization & modeling tools
- How geospatial statistics were used to determine the highest likelihood re-entry paths.
- How population statistics were used to determine the likely impact of the probe striking populated areas.

Our Speakers:

Matthew Horsley, (LLNL Physicist)
Matthew received his PhD in Physics from Yale University in 2002. Research interests include simulation of radar systems, algorithm development, particle physics and small spacecraft guidance and control. Prior to joining Lawrence Livermore National Laboratory, he was a member of the technical staff at MIT Lincoln laboratory, where he worked on technologies related to Ballistic Missile Defense.

Deborah Dennison, (LLNL GISP)
Deborah has a BA (Urban and Regional Planning) from the University of South Florida, holds two Graduate Certificates in Geographical Information Systems and Engineering & Technology Management and is also completing a Masters in GIS at Penn State University. Deborah currently is a Principal Engineer and the software development team lead for the GIS group at the Lawrence Livermore National Laboratory.

Venue Provided By: Livermore Valley Open Campus (LVOC) **http://www.llnl.gov/lvoc/**
IEEE Contact: Tim Voss, CS Chapter Chair, LLNL, 925-423-9000, voss1@llnl.gov

IEEE Members can RSVP via https://meetings.vtools.ieee.org/meeting_view/list_meeting/11277

(IEEE membership not required to attend)   **See also the IEEE GRID at: http://www.e-grid.net/**