

A WORD FROM THE PRESIDENT

Ever since we started QuakeFinder in 2000, we have been using a strategy of combining both satellite-based and ground-based electromagnetic monitoring to maximize the possibility of detecting and characterizing large earthquakes. In the satellite area, we started with QuakeSat-I, a 10-lb nanosatellite that was successfully launched in June 2003, and gave us good data for about 18 months (in fact it is still working as of last month). We then collected data from the French DEMETER satellite as a guest researcher, and saw good signals in the E-Field and electron density data. Now we are starting to define QuakeSat-II, a microsatellite based on "lessons learned" from the two previous satellites.

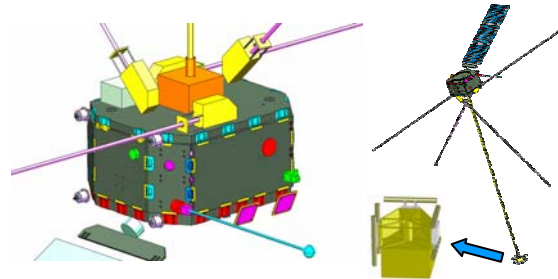
Since funding for this type of Earth Science mission is very hard to get in today's environment, we began looking at partnerships. Recently, we answered an RFI from Turkey for a high-level design and price quote, (with MicroSat Systems Inc of Littleton, CO as prime) for an earthquake monitoring satellite similar to our evolving design for QuakeSat-II. Whereas we do not know if Turkey will pick our design and price point, the exercise forced us to define the instrument suite and system engineering questions relative to QuakeSat-II. (See graphic on the right for a computer generated view of how the satellite might look). It is a 150-kg class microsatellite that is 3-axis stabilized, and contains 5 instruments and an X-Band downlink capability. The satellite could be built in about 24 months using existing designs.

We are also working with NASA, looking at the possibility of distributing the instruments over a "swarm" of nanosatellites. More on this effort will follow in the coming months.

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QuakeFinder/MSI Proposal QuakeSat



2nd Annual Demeter Workshop

The second annual gathering of scientists to review data from France's DEMETER mission was a rousing success. The DEMETER spacecraft measures electric and magnetic fields and other properties of the Earth's ionosphere, to facilitate study of ionospheric changes in conjunction with seismic activity. Researchers from Russia, Taiwan, Greece, Japan, Italy, France, USA, Czech Republic and others presented promising developments in the science of earthquake forecasting, with some potential evidence of signals occurring prior to earthquakes. Additional researchers reported significant ability to measure tsunami effects in the ionosphere. For more details of the mission see:

<http://demeter.cnrs-orleans.fr/dmt/>

Progress in Analysis of New Sensors

QuakeFinder has deployed ten new ground stations throughout California, with greatly increased sensitivity over previous systems. With the new systems comes the ability to compare calibrated signals at extremely low frequencies. The raw signals from the 10 new stations are relayed to QuakeFinder every night and studied for earthquake indications. We have developed low frequency coherence algorithms that seek to find variances from the geo-magnetic field that are localized to a portion of California using the new sites. This algorithm holds the promise of adding a new discriminator that looks for earthquake-related signals