QUAKEFINDER NEWS

A Humanitarian R&D Division of Stellar Solutions Inc

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International Handshake -- sensors installed in Peru:

QuakeFinder and PUCP installed a pair of monitoring stations in the Chincha Alta and Tacna areas of Peru. Monitoring stations were made possible through our sponsorship program (http://www.quakefinder.com/community/sponsorstation.php). These areas are particularly sensitive as evidenced in a recent magnitude 8 quake which caused hundreds of deaths and untold damage to property and buildings. Earthquake records indicate another large quake may happen soon. Additionally, QuakeFinder has installed new sensors at E. Gilroy, E. Petaluma, and Watsonville. Two more California units will be installed in the near future: one in the hills behind Hayward, CA where there is an average of 140 years between large quakes and we are currently at 141 years since the last one and the other in Chalame, CA near Parkfield where a series of "tremors" have been discovered recently. These deep, "slow" earthquakes (minutes to hours in duration) may redistribute the stress into upper layers and might trigger future quakes. Magnetic signal data may provide insight.

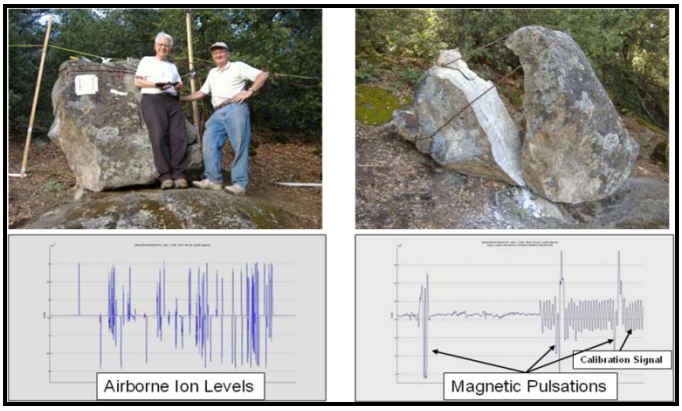
The Pontificia Universidad Católica del Perú (PUCP) Team – Catholic University in Lima, Peru

American Geophysical Union (AGU) Fall Meeting

The American Geophysical Union was founded after the great 1906 San Francisco earthquake, and has since been the seat of seismological science. Topics have expanded and now include Oceanography, Geodesy, Planetary Science, Climate Change, etc. Presentations range from measuring the decline of the polar ice-caps, to dust settling rates in the Martian atmosphere.

QuakeFinder's primary interest in this year's AGU meeting was confined to the "Natural Hazards" session, when oral and poster presentations were given on the subject of earthquake forecasting and prediction. This session had the largest to-date crowd, indicating a growing interest in the topic. The years appear to have brought a distillation to the field of study wherein the surviving research mostly indicates either positive results or promising work still in progress.

QuakeFinder's focus this year was showing the physics-based explanation of seismo-electromagnetic effect, specifically a connection between *laboratory* rock crushing experiments, the *in situ* rock-splitting experiment that was performed August 23 at Bass Lake, California, and the *field data* collected at Alum Rock. There were two back-to-back presentations, the first being given by Bob Dahlgren and Friedemann Freund of NASA Ames that reported the in situ boulder emitted infra-red radiation in the 8 and 12 micrometer bands during stressing, well before the actual fracture. There were similar elevated IR signatures in the days leading up to the Alum Rock quake, detected by the GOES satellite. Our presentation showed we detected the same type of "long" magnetic pulses (1-10 sec) in the boulder test as we did at Alum Rock. Finally, both the



Freund and Bleier at the Bass Lake rock

boulder test at Bass Lake and the Alum Rock quake demonstrated similar air conductivity changes.

Both presentations were well-received, and it became clear QuakeFinder's research is becoming more widely accepted. Our experiments done to establish scientific credibility are finally paying off.

Dr. Jacob Bortnik added an important parameterization chart of soil conductivity vs. the required amounts of current that would be needed to produce the pulses we saw at Alum Rock. Based on ground conductivity assumptions, the rough estimates of the current in the field near the epicenter of the 2007 Alum Rock (M5.4) earthquake are in the range of 100K-400K amps. The same charge carriers then migrated to the surface and ionized the air to values above 10^6 ions /cc/sec, saturating our sensor. In the past, large quakes have ionized the air sufficiently to break down the molecules and produce "earthquake lights". A M8 quake in Peru (2007) generated earthquake lights or flashes over the ocean, (where there are no power lines), and in the hills southeast of Lima (Ref. Bleier discussion with residents who observed the lights). If you are interested in an "Earthquake Lights" video on YouTube, see: http://www.youtube.com/watch?v=SHmHsP1gd8I

Tiger Liu, from Taiwan, presented results of an intensive study of the change in ionospheric Total Electron Count (T.E.C.) over the Taiwan/China/Japan areas preceding earthquakes. The method exploits the changing phase difference between two GPS satellite signals to estimate the electron density of the ionosphere. The data shows a *decrease in TEC* a few days prior to large earthquakes. We are now collaborating with Tiger and his team, to install 2 of our QF-1007 sensors in Taiwan in 2009. The data will compliment their TEC and magnetometer work, and may help provide more location information for future earthquakes there.

Dimitar Ouzonov, from Chapman University, again reported infra-red signals as a pre-cursor. Others have showed elevated IR near faults before earthquakes, and this has led Ouzonov's team to systematically use GOES and TERRA/MODIS IR data as sources. Many of the practical difficulties (cloud cover, seasonal temperature variance, albedo effects) were considered by Dimitar, as he showed an initial prediction track record: 2 hits and 1 miss.