

# ULF Common Mode Signal Estimation with a Network of sensors in California

By: Dunson Clark, Co-Authors: Tom Bleier, Dr. James Cutler, Dr. Jacob Bortnik

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Session

JSS008 Progress in electromagnetic studies on earthquakes and volcanoes - Electromagnetic fields associated with earthquakes and active faulting

Title

ULF COMMON MODE SIGNAL ESTIMATION WITH A NETWORK OF SENSORS IN CALIFORNIA

## Abstract

ULF COMMON MODE SIGNAL ESTIMATION WITH A NETWORK OF SENSORS IN CALIFORNIA

CLARK DUNSON 1, Tom Bleier 1, James Cutler 3, Jacob Bortnik 2

1. Quakefinder, Palo Alto, CA, USA
2. UCLA, Department of Atmospheric and Oceanic Sciences, CA, USA
3. Space and Systems Development Laboratory, Stanford University

Three of the problems facing those who attempt to investigate the ULF geomagnetic signals for relationships to seismicity are:

- 1) The magnitudes of the natural field fluctuations are often large compared with the signals of interest because of the normal geomagnetic activity;
- 2) Each site in a monitoring network has a different assortment of cultural noise sources contaminating the signals; and
- 3) Local impedance variations cause different signal reflections at each site. Prior work computing residual or local signals has been complicated by a number of difficulties, among them a dearth of signals to compare, often 1-3 instruments. Development of the high-sensitivity QF1005 sensor network and associated Data Center has allowed deployment of some of these techniques across a larger network (10+ instruments, including 30+ channels). Therefore, this presentation illustrates enhancements to calculations of the Intra-Station Transfer Function and the Common Mode Signal Estimator made possible by the larger array of sensors. The effects seen in different signal regimes (Pc3&4 vs. Pc1&2) will also be highlighted and discussed.

Author

Name and surname

Dunson Clark

Sponsoring Association

IASPEI

Department

Affiliation

-

Other  
Quakefinder, LLC  
Co-author

1  
Tom Bleier  
Quakefinder, LLC 250 Cambridge Ave., #204 Palo Alto, CA 94306 USA  
Applying for a grant NO

2  
Dr. James Cutler  
Space and Systems Development Laboratory Stanford University,  
Stanford, CA 94303, USA  
Applying for a grant NO

3  
Dr. Jacob Bortnik  
Depart of Atmospheric & Oceanic Sciences, UCLA Room 7115, Mathematical  
Sciences Bldg. Los Angeles, CA. 90095 USA

Applying for a grant NO

Other information

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Estimation noise distributed

Presentation Type

Oral and Poster presentation

Equipment needed for this presentation

PC Projector

Student paper

No notes