2016 Workshop: Crowd to Cloud

Long title
Crowd to Cloud: Exploiting Crowd-Sourced Data for Geospace Science (quick link: bit.ly/crowd2cloud)
CEDAR-GEM
Conveners
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Description

A variety of open-source crowd-sourced data exist that may provide potentially useful geophysical information with higher temporal and spatial coverage than traditional observations, yet these sources remain relatively uninvestigated. Crowd-sourced data are defined loosely as any source of data that could be made available to our community from the “crowd” in the virtual “cloud”, for example, feeds from social media, amateur radio spotting networks, citizen scientist supported sensors, mobile telephone apps, or repurposed satellite housekeeping data, to name a few possibilities. TEC derived from GPS satellites and the AMPERE specification of field aligned currents from engineering grade magnetometers are two quintessential examples of leveraging a non-traditional data source to generate scientific quality data and breakthrough scientific discovery. Recently, the Aurorasaurus citizen science project has used crowd-sourcing to collect scientifically useful observations of aurora, over global scales and in real-time, for the purposes of improved understanding and modeling.

The aim of this session is to discuss various open sources of data, and which scientific questions these could address. Since these data may be non-traditional, this session is also designed to investigate techniques that can be used to analyze these data to produce physically relevant quantities. This topic is in alignment with the 2016 NSF Agency Priority Goal (APG) on Public Participation in Science, Technology, Engineering, and Mathematics Research (PPSR).

Agenda

- Ethan Miller, Introduction
- Eric Donovan, UC, Auroral Zone citizen science image analysis
- Liz MacDonald, NASA, Aurorasaurus
- Magda Moses, HAMSci overview, VT
- Nathaniel Frissell, NJIT, HAMSci science
- Anthea Coster, MIT, MAHALI
- Jim Raeder, UNH, cell phone magnetometers
- Sergio Luengo, UM, Moldwin mag lab activities
- A. Bhatt/E. Kendall - SRI Int'l - MANGO
- S. Kaeppler for H. Bacivan - SRI Int'l - DVB-TV cubesat
- Discussion

Justification

This topic is relevant to both the GEM and CEDAR communities as it examines new possible sources of data that could be ingested into magnetospheric and ionospheric models. In addition, these data could also be used to test predictions made by models. NSF' unique programs like INSPIRE, EarthCube, and the new priority on citizen science would be highlighted.

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