The Hawai‘i Supersite: 2-years on (and counting!)

Michael Poland

USGS – Hawaiian Volcano Observatory
# Science Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falk Amelung</td>
<td>U Miami</td>
</tr>
<tr>
<td>Simone Atzori</td>
<td>INGV</td>
</tr>
<tr>
<td>Scott Baker</td>
<td>UNAVCO</td>
</tr>
<tr>
<td>Yunmeng Cao</td>
<td>CSU</td>
</tr>
<tr>
<td>Gilda Currenti</td>
<td>INGV</td>
</tr>
<tr>
<td>Kurt Feigl</td>
<td>U Wisconsin</td>
</tr>
<tr>
<td>Liu Guang</td>
<td>CAS</td>
</tr>
<tr>
<td>Hyung-Sup Jung</td>
<td>U Seoul</td>
</tr>
<tr>
<td>Paul Lundgren</td>
<td>JPL</td>
</tr>
<tr>
<td>Michael Poland</td>
<td>HVO</td>
</tr>
<tr>
<td>Sergey Samsonov</td>
<td>NRC</td>
</tr>
<tr>
<td>Eugenio Sansosti</td>
<td>CNR</td>
</tr>
<tr>
<td>Manoochehr Shirzaei</td>
<td>ASU</td>
</tr>
<tr>
<td>Antonio Valentino</td>
<td>ARESYS</td>
</tr>
<tr>
<td>Thomas Walter</td>
<td>GFZ</td>
</tr>
<tr>
<td>Bing Xu</td>
<td>CSU</td>
</tr>
<tr>
<td>Howard Zebker</td>
<td>Stanford</td>
</tr>
</tbody>
</table>
Available Data

Satellite SAR
- ENVISAT (756 scenes)
- RADARSAT-1 (500)
- ALOS-1 (414)
- TerraSAR-X (190)
- COSMO-SkyMed (450)
- RADARSAT-2 (268)

Ground / Air / Space
- GPS/tilt/strain
- Seismic
- Gravity
- Gas emissions
- Geologic mapping
- Camera
- UAVSAR
- EO Satellite data
So, what have we learned?

- Earthquake and volcano deformation
- Lava flow dynamics
- Magma plumbing
- Flank instability
TerraSAR-X time series

Summit eruptive vent

Richter et al., 2012
Coherence from multiple satellites and look angles can be combined to develop a temporally dense time series of lava flow activity.

Dietterich et al., 2012
Lava flow thickness from InSAR coherence

Data from ENVISAT

Dietterich et al., 2012
Lundgren et al., 2013
Detailed modeling of dike emplacement
Combining multiple TSX acquisitions allows for separation of atmospheric artifacts from both secular and transient (e.g., aseismic slip) motion.

Chen et al., 2014


Issues

• Accountability
• Coordination between science teams
• RSAT-1 / ALOS-1 accessibility issues
• Timeliness of data delivery
• Archive for non-SAR datasets
• New user access to SAR datasets
• Supporting information (e.g., DEMs)
• Website (for data access and sharing results)
Thanks to...

Contributing agencies

ASI (Italy)
CSA / MDA (Canada)
DLR (Germany)
ESA (Europe)
GEO (Switzerland)
JAXA (Japan)
NASA (United States)
UNAVCO (United States)
USGS (United States)