

**Shore-based Data Analysis Plan For NSF-OCE 0732366 “Eruption Processes Associated with the 2005-06 Volcanic Episode at the East Pacific Rise ISS”, PI, S. Adam Soule, 9/1/2007 thru 8/30/2009**

**Anticipated products:**

- Detailed map of 2005-06 lava flow extent.  
Flow extent has been published in Soule et al., 2007 – *Geology* and is available through the DMO.
- Detailed map of 2005-06 axial summit trough.  
Axial summit trough map is to be published in Soule et al., in press – *G-cubed*. Pre-eruption map is available through the DMO, post-eruption map is to be submitted.
- Detailed map of 2005-06 flow morphology distribution.  
In development.
- Seafloor images and navigation from camera tows.  
All available CameraTow imagery is available through the DMO and navigation is available for most of the tows (see table).
- Near-bottom multibeam bathymetry data over the ridge axis.  
Multibeam grids have been published in Soule et al., 2008 – *G-cubed* and are available through the R2K DMO in collaboration with V. Ferrini.
- Sidescan sonar imagery over the new eruption site.
- Dissolved volatiles (CO<sub>2</sub>, H<sub>2</sub>O, F, Cl, and S) in glasses (~24 samples) from 2005-06 lavas (AT15-17) and constraints on flow degassing and dynamics.

**Reported results:**

- Soule, S.A., Ferrini, V.L., Kinsey, J.C., Fornari, D.J., Sellers, C., White, S.M., Von Damm, K., and Carbotte, S. (2008), Navigational infrastructure at the East Pacific Rise 9°50'N area following the 2005-06 eruption: seafloor benchmarks and near-bottom multibeam surveys, *G-cubed*, 9, doi:10.1029/2008CG002070.
- Soule, S.A., Fornari, D.J., Perfit, M.R., and Rubin, K. (2007), New insights into mid-ocean ridge volcanic processes from the 2005-2006 eruption of the East Pacific Rise, 9°46'N-9°56'N, *Geology*, 35, 1079-1082.
- Soule, S.A., Escartín, J., Fornari, D.J. (2009), A record of eruption and intrusion at a fast-spreading ridge axis: the axial summit trough of the East Pacific Rise 9°-10°N, *G-cubed*, in press.
- Ferrini, V.L., Soule, S.A., Fornari, D.J., Von Damm, K., Shank, T.M., Perfit, M.R., and Rubin, K. (2007), Small-scale bathymetric changes associated with 2005-2006 eruptions at the East Pacific rise near 9°50'N, EOS Trans. AGU, 87, Abstract V23B-0604.
- Fundis, A.T., Soule, S.A., Fornari, D.J., and Perfit, M.R. (2008), The 2005-2006 eruption at the East Pacific Rise 9°50'N: detailed flow morphology mapping and insight into emplacement processes, EOS Trans. AGU, 89, Abstract B21A-0328.

Rubin, K.H., Tolstoy, M., Fornari, D.J., Dziak, R.P., Soule, S.A., Waldhauser, F., and Von Damm, K.L. (2008), Integrating radiometric, geophysical and thermal signals of volcanic unrest and eruption in 2005-06 at 9°50'N EPR, EOS Trans. AGU, 89, Abstract B23F-07.

White, S.M., Soule, S.A., Tolstoy, M., Waldhauser, F., and Rubin, K. (2008), Volcanic eruptions of the EPR and ridge axis segmentation: an interdisciplinary view, EOS Trans. AGU, 89, Abstract B21A-0329.

**Expected Delivery Date for outstanding derived data:**

- Flow morphology distribution is part of a Masters thesis with expected completion in late 2009.
- Post-eruption AST map expected upon publication of Soule et al., 2009 – G-cubed.
- Remaining navigation data for camera tows expected in Summer 2009.
- Sidescan sonar imagery will be delivered at the end of the proposal period.
- Dissolved volatile concentrations to be delivered at the end of the proposal period.

**Camera Tows over the 2005-06 eruption site** (\*indicates submitted images and navigation, ^indicates submitted images, no navigation):

|              |               |               |               |
|--------------|---------------|---------------|---------------|
| NH06_CT01*   | AT15-6_CT05*  | AT15-13_CT09* | AT15-15_CT09* |
| NH06_CT02*   | AT15-6_CT06*  | AT15-13_CT10* | AT15-15_CT10* |
| NH06_CT03*   | AT15-6_CT07*  | AT15-13_CT11* | AT15-15_CT11* |
| NH06_CT04*   | AT15-13_CT01^ | AT15-15_CT01* | AT15-15_CT12* |
| NH06_CT05*   | AT15-13_CT02* | AT15-15_CT02* | AT15-27_CT02^ |
| NH06_CT06*   | AT15-13_CT03^ | AT15-15_CT03* | AT15-27_CT03^ |
| NH06_CT07*   | AT15-13_CT04* | AT15-15_CT04* | AT15-27_CT04^ |
| AT15-6_CT01^ | AT15-13_CT05^ | AT15-15_CT05* | AT15-27_CT05^ |
| AT15-6_CT02* | AT15-13_CT06* | AT15-15_CT06* |               |
| AT15-6_CT03* | AT15-13_CT07^ | AT15-15_CT07* |               |
| AT15-6_CT04* | AT15-13_CT08* | AT15-15_CT08* |               |