Concerns regarding mid-water transport of oil from well

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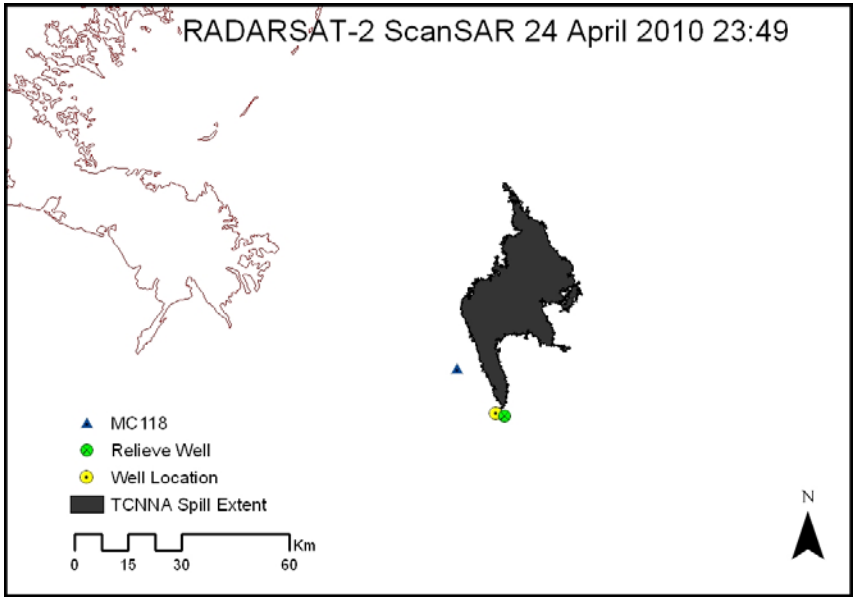
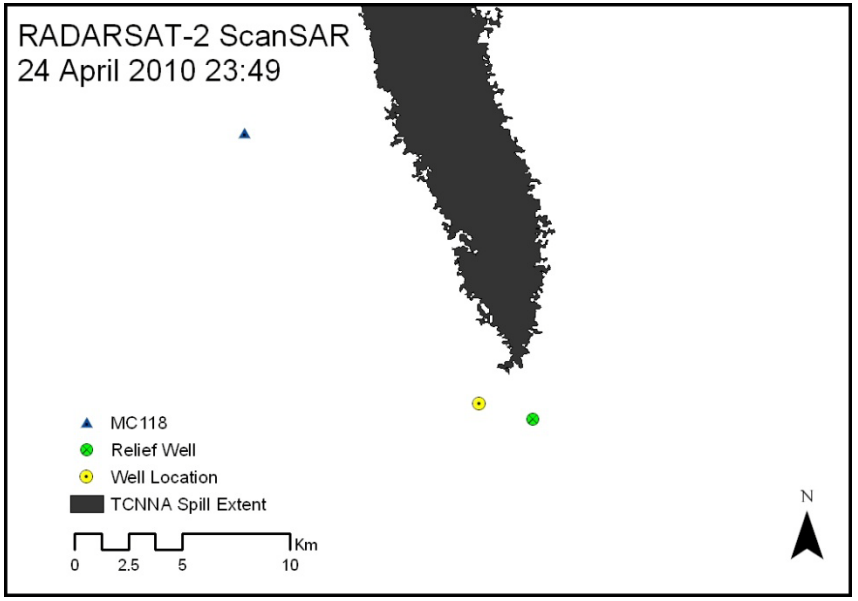
Oil Spill Academic Task Force
http://oilspill.fsu.edu

Situation and need

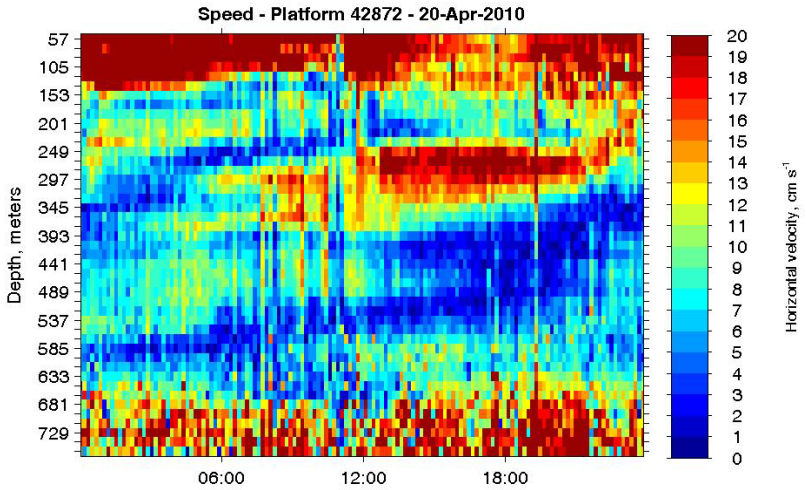
- Data on the current profiles at the leaking well are urgently needed by marine scientists.
- An on-scene instrument is not working properly.
- The data are needed for understanding the possible movement of oil and/or dispersant plus oil.
- Two examples of harmful events that could be mitigated or monitored with ADCP data are
  - Creation of a buoyant plume that might be advected at mid-depth.
  - Entrainment of dispersants and oil to nearby colonies of deepsea corals.

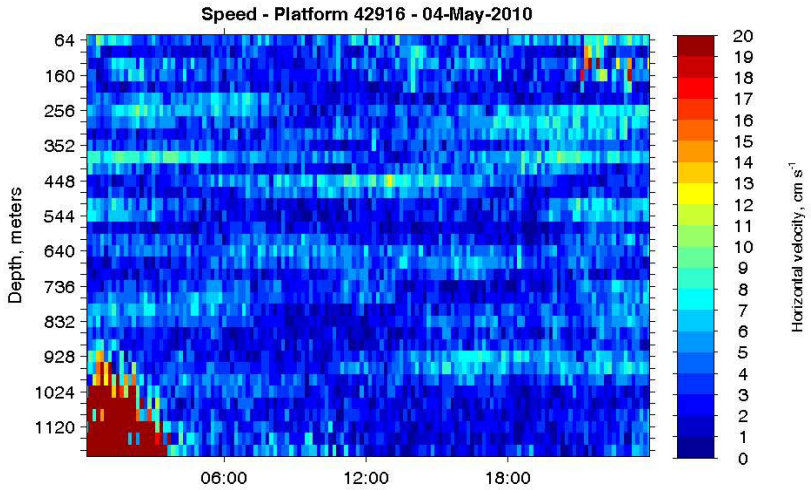
Oil released from the Deepwater Horizon well was drifting north during early days after the accident. The relief rig (Development Driller III) has been positioned near the damaged well (2.5 km), but outside the apparent plume of rising oil. MC118 is a site that harbors a known community of deepsea corals. The spill extent data were taken three days after the accident. Presently the spill covers the entire area.





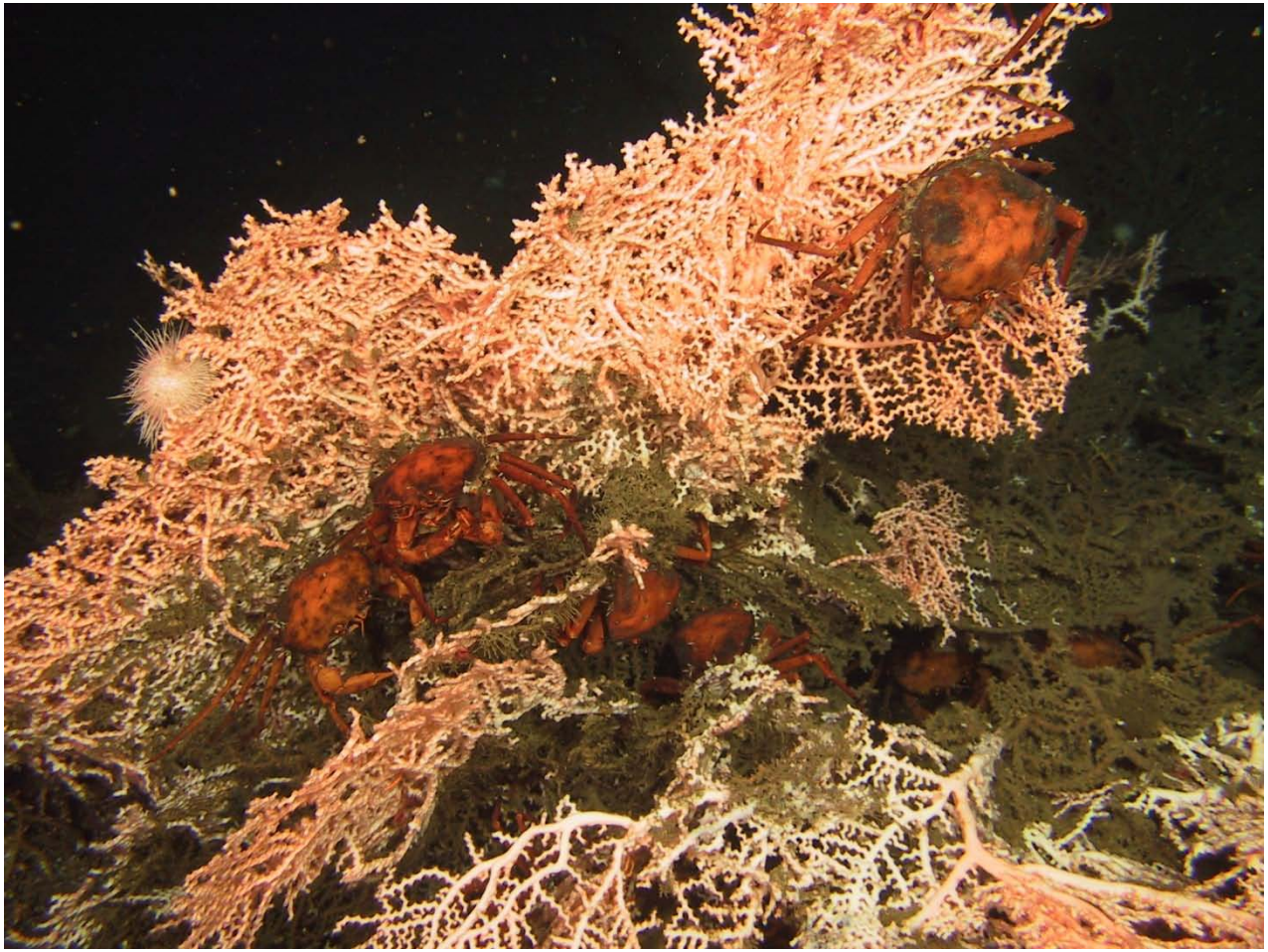
The Deepwater Horizon (42872) and the Development Driller III (42916) were both outfitted with acoustic Doppler current profilers (ADCP), which measure the currents at different depths below the rig. These data are automatically reported to shore-based observers. The current profiles would be immensely valuable for modeling the probable trajectory of oil to the surface and possible mid-water transport of oil to which dispersant has been added. Comparison of equivalent speed profile records from the two instruments indicates that the one presently on the Development Driller (right) is not properly configured and is not producing useful data.





Experts who do regular QA/QC on these data concur. Steve DiMarco (Texas A&M Univ. Oceanography Dept.): The speeds are tiny compared to climatology, also the directions vary way too much to be believable. I can see little diel structure in the backscatter in the upper 250 m.

Madrepora coral at MC118: This colony of corals is located ~10 km from the leaking well. Injection of dispersants in oil released at the seafloor may lead to further entrainment of oil plus dispersant to this site. Current profiles would assist in predicting this possibility.



Requested action

- The on-scene coordinator needs to check the ADCP on the Development Driller III. A phone call to technicians on land might rectify the situation
- If possible, an up-looking ADCP should be installed on one of the on-scene ROVs. This instrument could readily be configured to send its data to the ship in real time.