



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
OCEANIC AND ATMOSPHERIC RESEARCH
Office of Ocean Exploration and Research
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NOAA OFFICE OCEAN EXPLORATION AND RESEARCH
Potential Discovery (DISCO-P) Report
2009/07/16

CRUISE: EX0905
Deep water mapping trial-IV

DATE/TIME FILED:
07-16-09/ 2345 PDT

VESSEL:
NOAA Ship *Okeanos Explorer* (EX)

Location of potential discovery:
Plume sites found in location

| Longitude | Latitude | Water Depth |
|------------|-----------|-------------|
| 124.7561 W | 40.6690 N | 1250m |
| 124.7626 W | 40.6450 N | 1877m |
| 124.7628 W | 40.6534 N | 1789m |
| 124.7595 W | 40.6663 N | 1593m |
| 124.7931 W | 40.5758 N | 1641m |

Previously mapped plume (May 2009)
124.7834 W 40.5350 N 1870m

PERSONNEL ON BOARD:

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SUMMARY:

EM 302 water column data detected plumes located in locations as identified above while transiting to the Cordell Bank National Marine Sanctuary working grounds from Astoria, OR on 15 July 2230 PDT – 16 July 0230 PDT. The plumes were located in water depths between ~ 1200 – 1900 m. All plumes were observed to rise to a water depth between 500-550 m making their heights between ~ 700-1400 m. The plumes were observed to be scattered in ~ 15 km area around the plume site first detected during May 2009 mapping field trials on the Mendocino ridge. Also the EM 302 data verified that the plume detected in May 2009 is still active with no apparent changes in its structure.

DISCUSSION:

Location of the plume site and different perspective and plan views are shown in the figures below.



Figure 1: Location map of the plume site

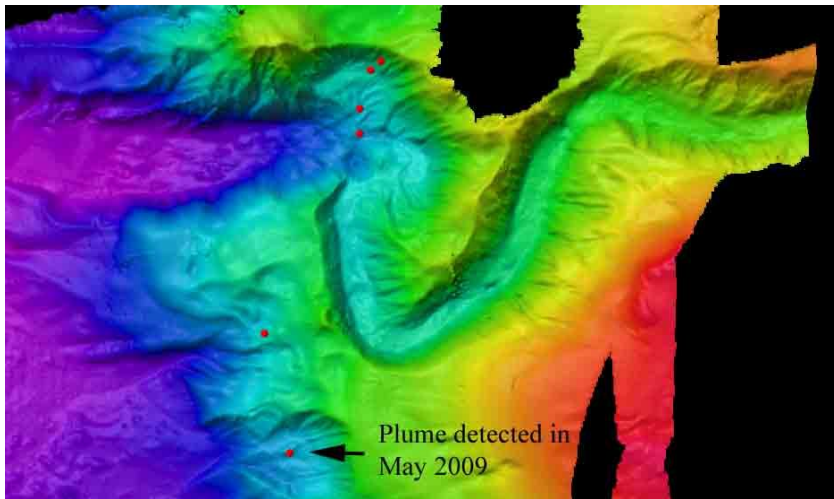


Figure 2: Locations of different plume sites detected.

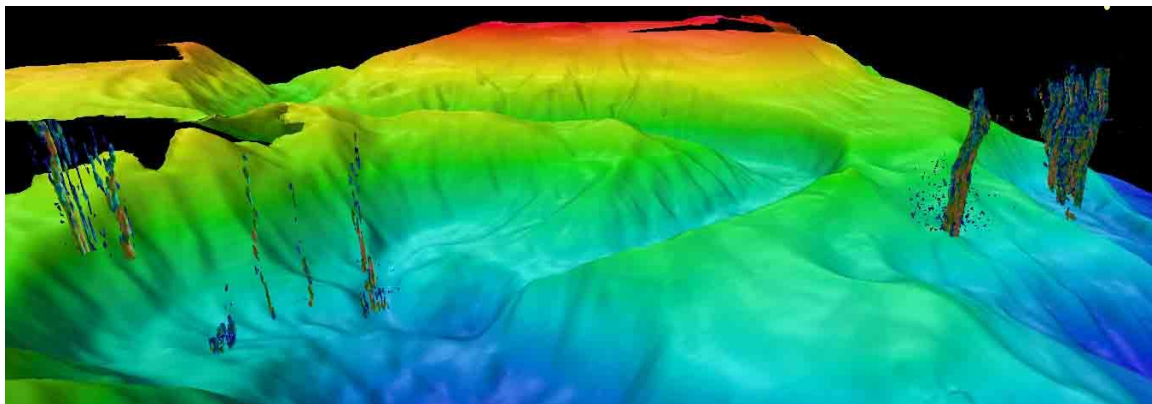


Figure 3: Perspective view of the plume field site looking south west. The plume on extreme right is the plume detected in May 2009.

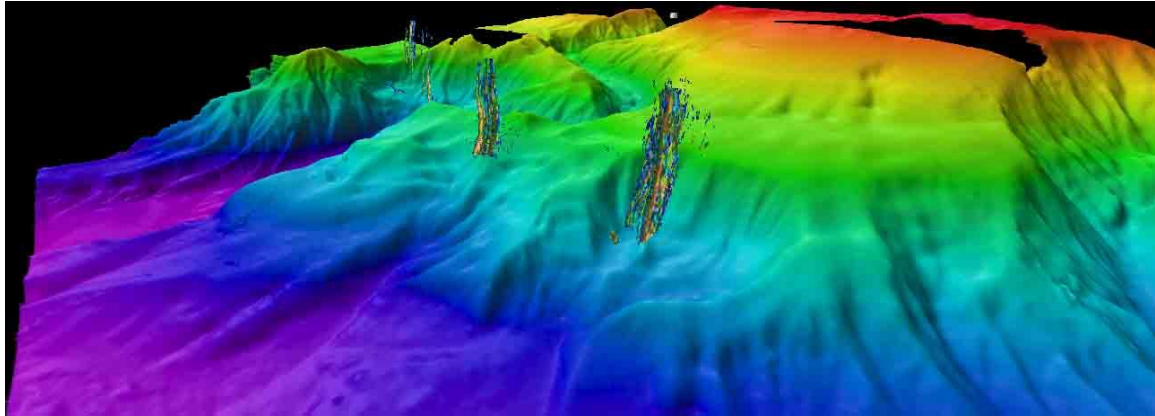


Figure 4: Perspective view of the plume field created using IVS Fledermaus looking north east.

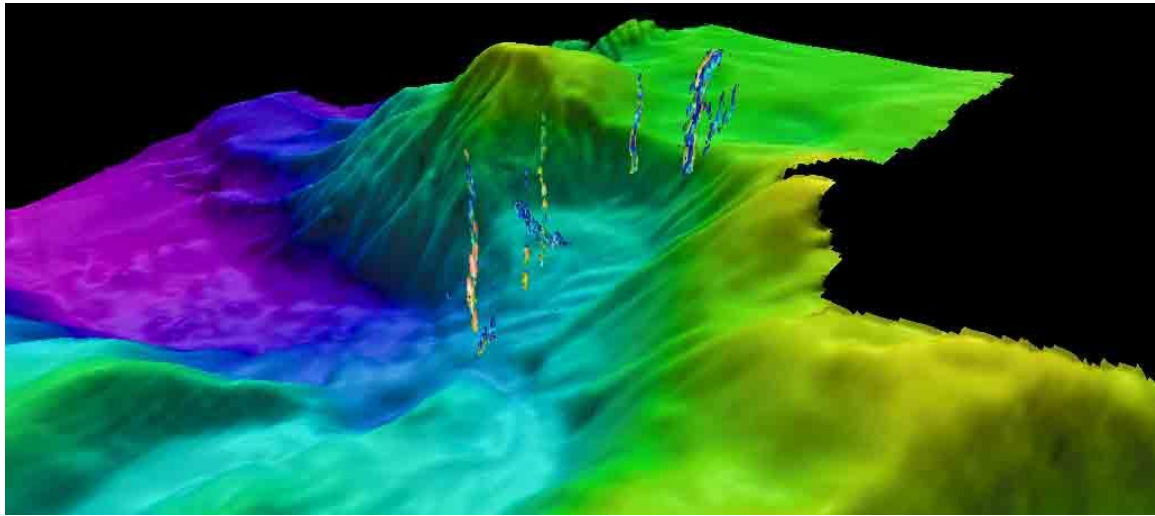


Figure 5: Perspective view of the newly found plumes.

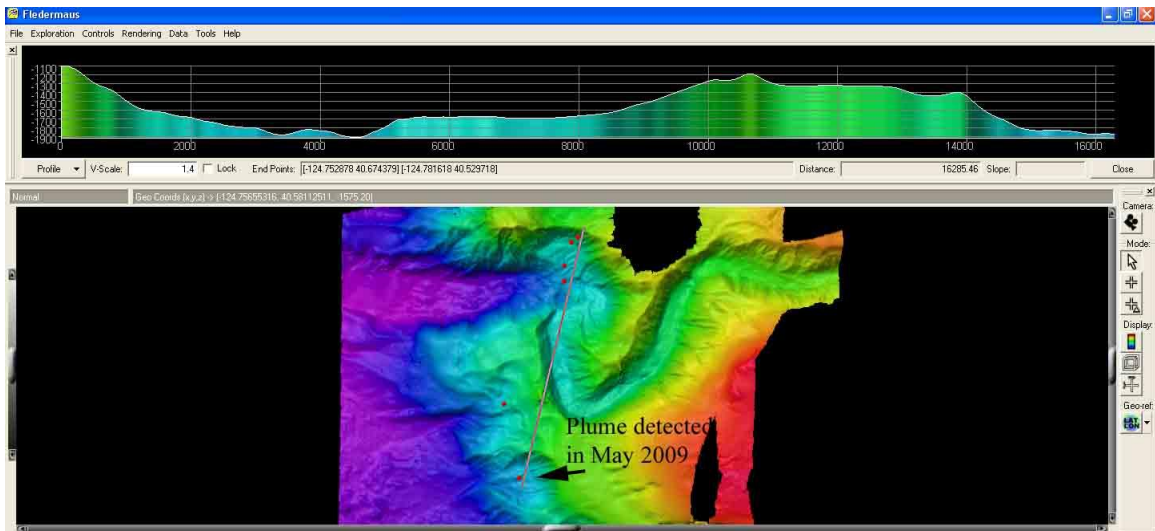


Figure 6: Depth profile across the plume site.

As shown in the Figure 6 and 4, the plumes appear to align themselves in a line extending ~ NE-SW. The southern two plumes seem to be much larger as compared to the other plumes (Figure 3). The northern most plume lies in a slumped area similar to the southern plume, however, the plume in the middle does not show any structure on the bathymetric data (Figure 3 and 5).

As the ship passed over the plume during the night, no surface bridge observations are available.

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FURTHER WORK BEING PLANNED:

No further data collection at this site is being planned at this time pending instructions from OER. Ship will continue to run the originally planned mapping lines in vicinity of Cordell bank NMS.

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COMMENTS:

The purpose of a DISCO-P report is to provide a record of an observation of an unanticipated feature or phenomena. The objective is to provide information as a foundation for potential further scientific investigation – the information and data is not the result of rigorous scientific analysis and research, nor are they intended to be. The objectives of these reports are to initialize action required to further vet, investigate and validate new discoveries.

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=====END OF DISCOVERY POTENTIAL REPORT=====

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