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# MR01–K03 Cruise Summary

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This cruise was conducted chiefly to study the global biogeochemical cycle and to make a database for detecting an environmental change in the western North Pacific. We collected water samples at 25 stations, sediments at 5 stations and recovered sediments traps at 3 stations for this cruise's purpose. XBT/XCTD observations were also carried out in several eddies. R/V Mirai left Sekinehama on June 4, 2001 and returned on July 19. Seven institutions (JAMSTEC, Kanazawa Univ., Hokkaido Univ., Tsukuba Univ., Toyama Univ., NIES in Japan and POI in Russia) participated in this cruise.

We conducted several observations and analysis in this cruise as follows.

1. Hydrocasting

Water samples at 13 stations from 26N to 44N along 155E were collected with CWS (Carousel Water Sampler) attached CTD (SBE 9 plus) for the detection of the seasonal variation of materials related the climate change in the western North Pacific. We also collected water samples at 12 stations near the area deployed the sediment trap array and others. Salinity, dissolved oxygen gas, nutrients, carbonate species, some trace metal, DMS, CFCs, and others were determined.

2. Underway measurements

Temperature, salinity, nutrients, pCO<sub>2</sub> and TCO<sub>2</sub> in surface seawater were measured continuously along this cruise track. Surface current of seawater was also measured using ADCP attached with R/V Mirai.

3. XBT/XCTD observations

XBT/XCTD observations were carried out for the eddy study with the CTD–CWS observation. We obtained temperature and salinity profiles inside several eddies which located off Sanriku coast and along/near 160E.

4. Sediments coring

Sediments for analyzing the history of the environments around and near the last glacial period were collected at 5 stations.

5. Time-series sediments trap experiments

Sediments traps were deployed in three stations to determine the seasonal particle flux in the high latitude area of the western North Pacific. In this cruise, we recovered two sediment trap arrays.

6. Others

The observations related with atmospheric science, geology and others were conducted in this cruise.