[EJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-AG Applied Geosciences

[M-AG32]Marine Earth Informatics

convener:Seiji Tsuboi(JAMSTEC, Center for Earth Information Science and Technology), Keiko Takahashi(Japan Agency for Marine and Earth Science and Technology), Masaki Kanao(国立極地研究所)
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In advancing the research of marine Earth science, observation and computer simulation is an essential element. In recent years, the performance of the observation apparatus is dramatically improved, along with the means of observation is diversified. It is becoming possible to observe in a resolution, which was not imaginable so far. Such data to be generated from the observation is tremendously large in quantity and its quality is drastically improved. To handle these huge and high quality dataset for data analysis, we need to have a high speed and large memory computer system but such a system now becomes within reach in our hands by the recent dramatic improvement of high performance computer system. On the other hand, researchers who can use this kind of large-scale computer in their studies are still quite limited. In this session, we try to review the situation of observation data that has undergone a dramatic change regarded with both quality and quantity in recent years of marine Earth science research. We also try to review the situation from a professional standpoint of simulation about the status of the high performance computer system to analyze these 'big data'. Also we focus on the state of the art data analysis technique and aim to share the outlook from the professional standpoint of computational science and professional position of observation science about the future direction of the marine Earth informatics research.

[MAG32-P08]Quasi-Real-Time Surface Current Information of the Eastern Tsugaru Strait via Ocean Radar data Site "MORSETS"

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The Eastern Tsugaru Strait is the area that the Tsugaru warm current and the coastal Oyashio are mixed. Tsugaru warm current is a branch of the Tsushima warm current that has been northward from the Sea of Japan, the coastal Oyashio is thought to originate from the Okhotsk Sea origin. Therefore, the marine environment in this area is affected by the global environmental change.
In order to research the environmental change of the Tsugaru Strait, Mutsu Institute for Oceanography (MIO), Japan Agency for Marine Earth Science and Technology (JAMSTEC) has been observing these surface currents by HF radar from three radar stations surrounding the Eastern Tsugaru Strait (ESAN Station: Hakodate Hokkaido, OHATA Station: Mutsu Aomori, IWAYA Station: Higashidori Aomori). Radar stations are continuously monitoring the flow of the Tsugaru Strait from April 2014.
Data of flow direction / velocity observed at radar stations is visualized as surface current maps every 30 minutes, MORSETS (MIO Ocean Radar data Site for Eastern Tsugaru Strait)[1] exhibits quasi-real-time surface current maps of the Eastern Tsugaru Strait. In this site, user can see the current maps from quasi-real-time and the past 48hr observations on your browser. The numerical data will be available for download in addition. MORSETS aims to contribute to the fisheries industry, shipping industry, disaster prevention, marine accident response, and research for marine environment change.
As an example of the utilization of MORSETS, access analysis showed the possibility that system is particularly utilized by fisheries. Typically, in other site of JAMSTEC, it tends to show the peak of access during the day. But MORSETS shows the peak of access early in the morning around 4 to 5 AM.

This peak shows a good correlation with working time of fisheries (early in the morning around 4 to 5 AM), it can be inferred that fisheries are checking the sea condition.
Based on these examples of utilization, in order to expand the information and to improve the system, we implemented functions to display the water temperature information on the current map of the eastern coast of the Tsugaru Strait in FY 2017.
As a result, besides the visualization of current direction and velocity data, it was possible to distribute changes of the water temperature in coastal areas.
In this presentation, we will introduce MORSETS and discuss the application of research results.

References:
[1] http://www.godac.jamstec.go.jp/morsets/e/