

# Application of large flying boat for making observation in response to events in the Earth and Planetary Sciences

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The one of the benefits of using a large flying boat for Earth and Planetary Sciences research is the capability to respond quickly to events that occurred in the atmosphere and ocean. For example, large scale volcanic eruption, earthquake, forest fire, yellow dust blown over from China by a gust of wind and artificial pollution from a nuclear accident and tanker accident release large amounts of material and gases onto Earth's surface and into the atmosphere. These substances are often eventually transported to, or deposited on, the ocean. Unfortunately, important opportunities to measure the effects of such events on the ocean may be missed, because the traditional means of collecting samples from the ocean (i.e., large ships) require response times ranging from several days to months. However, a flying boat could be deployed, and allow field surveys to be conducted, within 24 hours, if necessary. As an example, several recent studies that investigated the influence of typhoons on the marine environment have pointed out that typhoons may cause marine phytoplankton blooms, and this phenomenon is of increasing interest throughout the world. However, the mechanisms by which typhoons may stimulate phytoplankton blooms are poorly understood, because the necessary samples often cannot be obtained because of the risks of conducting research on ships during such events. A flying boat would allow such challenges to be overcome. We will discuss our vision for using a flying boat to make observations during and immediately following events of Earth and Planetary Sciences.

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