

## Pacific Plus: An Essential Addition to the Global Observing System

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A concept is presented of a system to augment the existing global observing system with an in situ component to obtain detailed vertical profiles of state, forcing, and feedback from the stratosphere to the deep ocean. The first phase of the system is called Pacific Plus (Figure 1), and it is proposed for implementation in this decade. The second phase would be a global observing system named Global Unified Profiling System. The requirements for Pacific Plus are described. It is seen as an essential addition to the global observing system that would allow more accurate global climate change projections. The system includes Unmanned Aerial Vehicles, such as the Global Hawk in the stratosphere, and buoys, such as the Platform and Instrumentation for Continuous Ocean Observations (PICO) buoy being developed by NOAA's Pacific Marine Environmental Laboratory. Profiles would be taken over a broad swath of the Pacific, from Asia to the Americas in the tropics, and from the north pole to the south pole in the mid-Pacific. It is argued that by constraining the forcing and feedback of climate models over a broad, poorly observed area of the planet, the uncertainty of 100-yr climate projections would be significantly decreased.

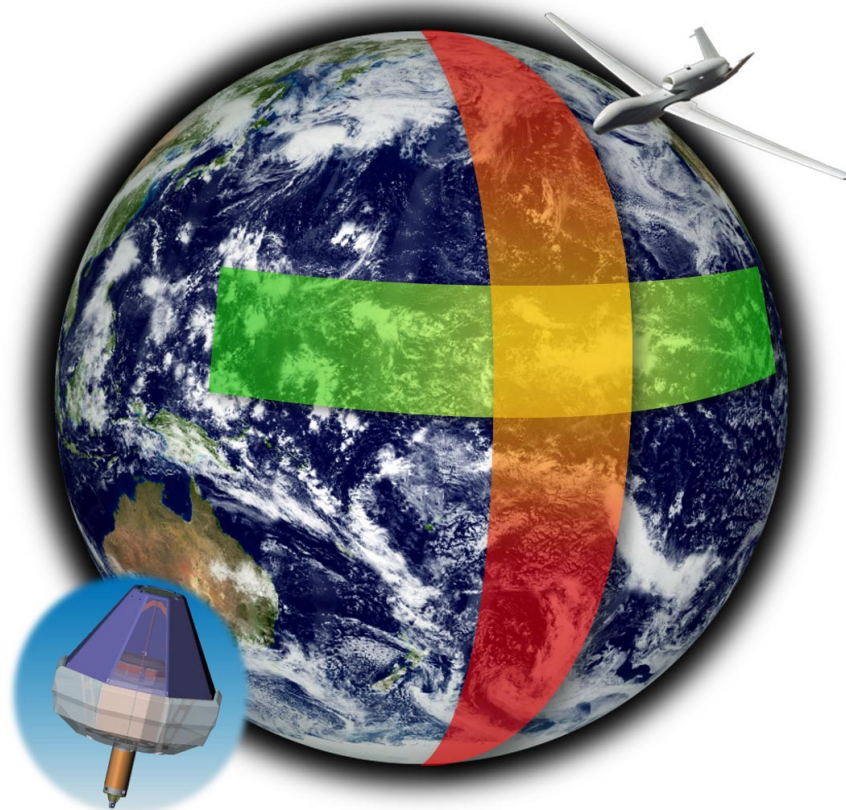


Figure 1. Pacific Plus. This first phase of the proposed system would use a new generation of buoys (such as the PICO buoy shown on the lower left) and Unmanned Aerial Vehicles (such as Northrop's Global Hawk shown on the upper right) to take detailed profiles of the ocean and atmosphere over a broad area of the Pacific.