



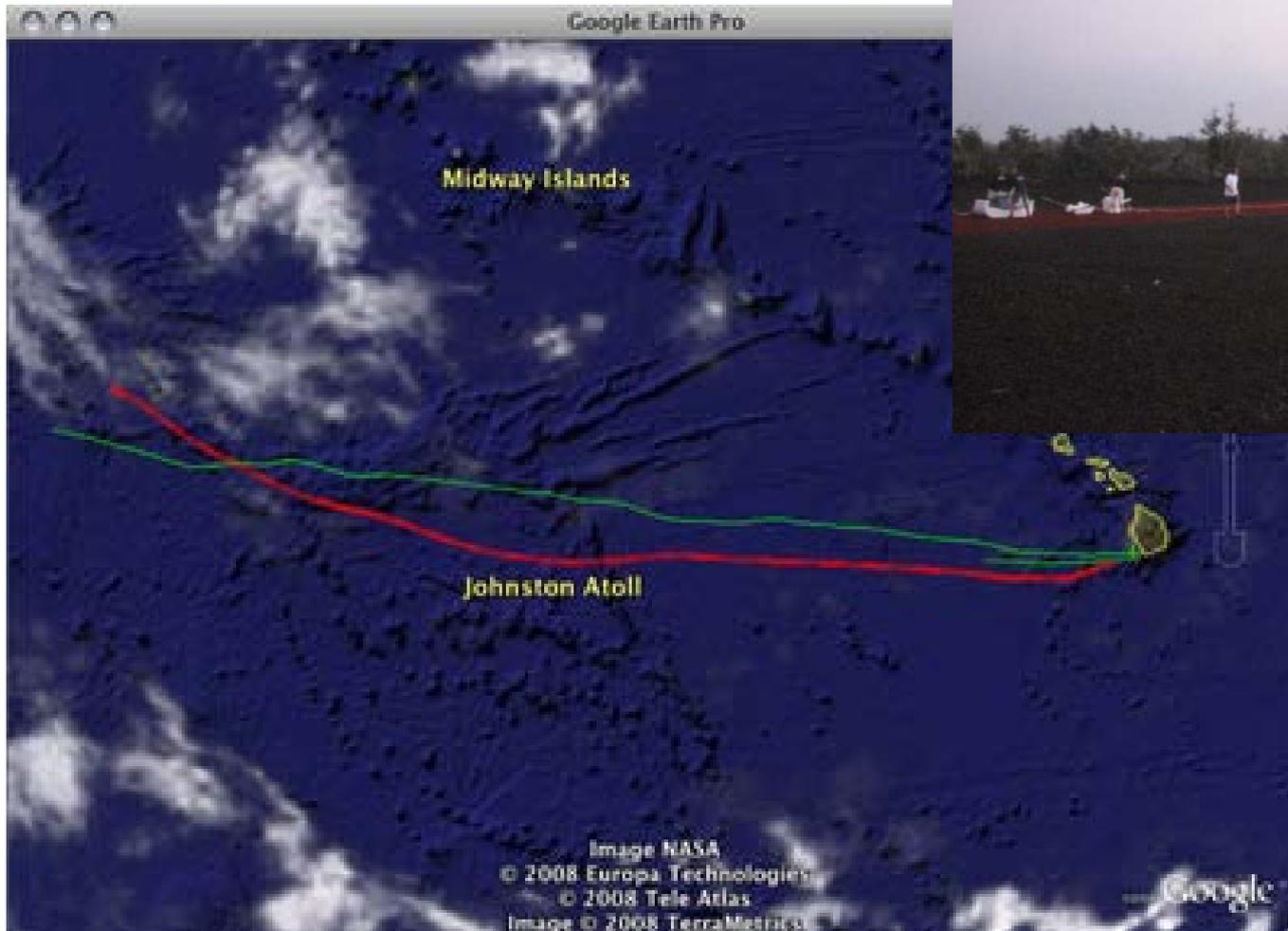
NSF recent activity



ICCAGRA Meeting Palmdale

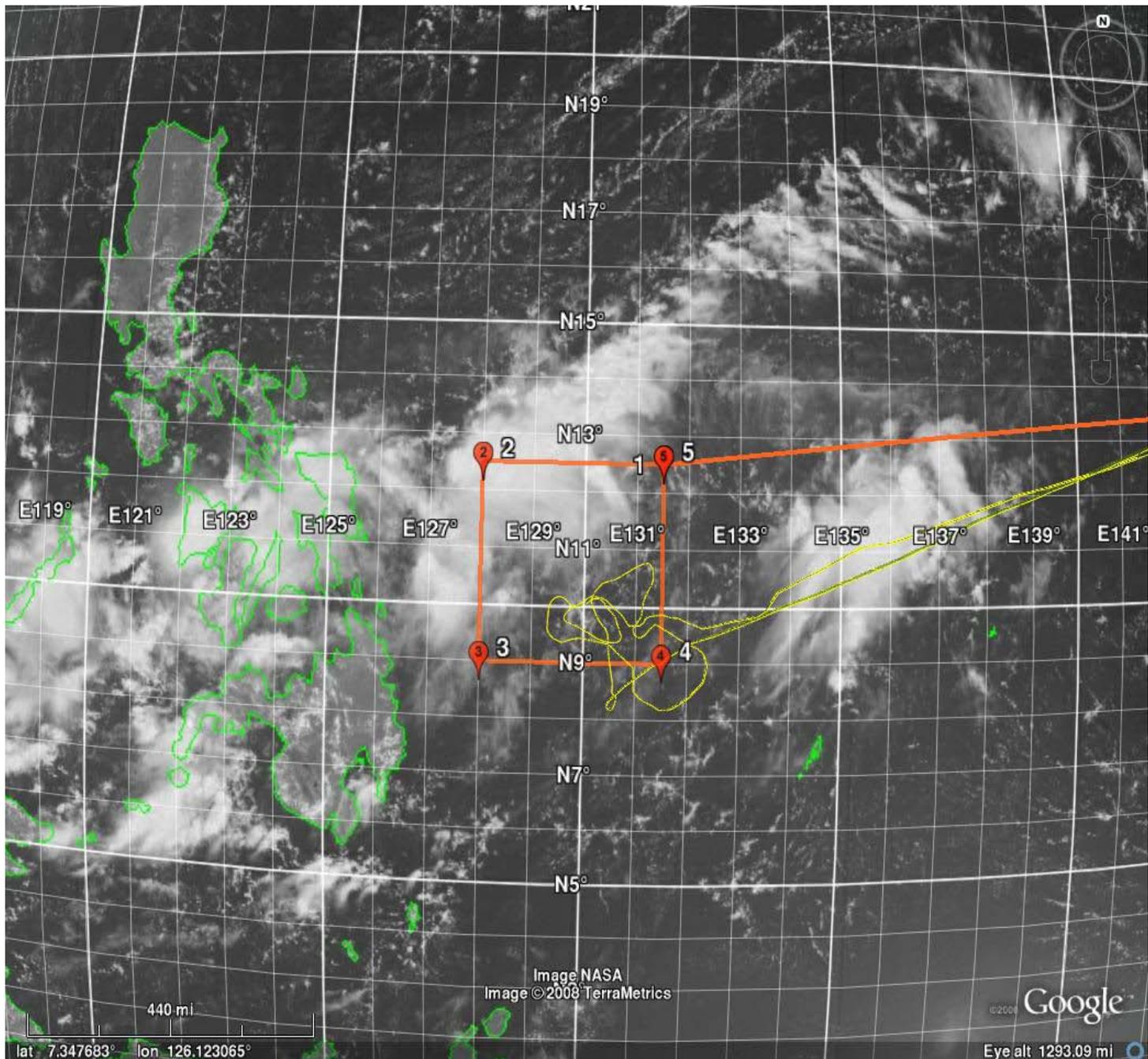
October 2008

Peter Milne & Jim Huning









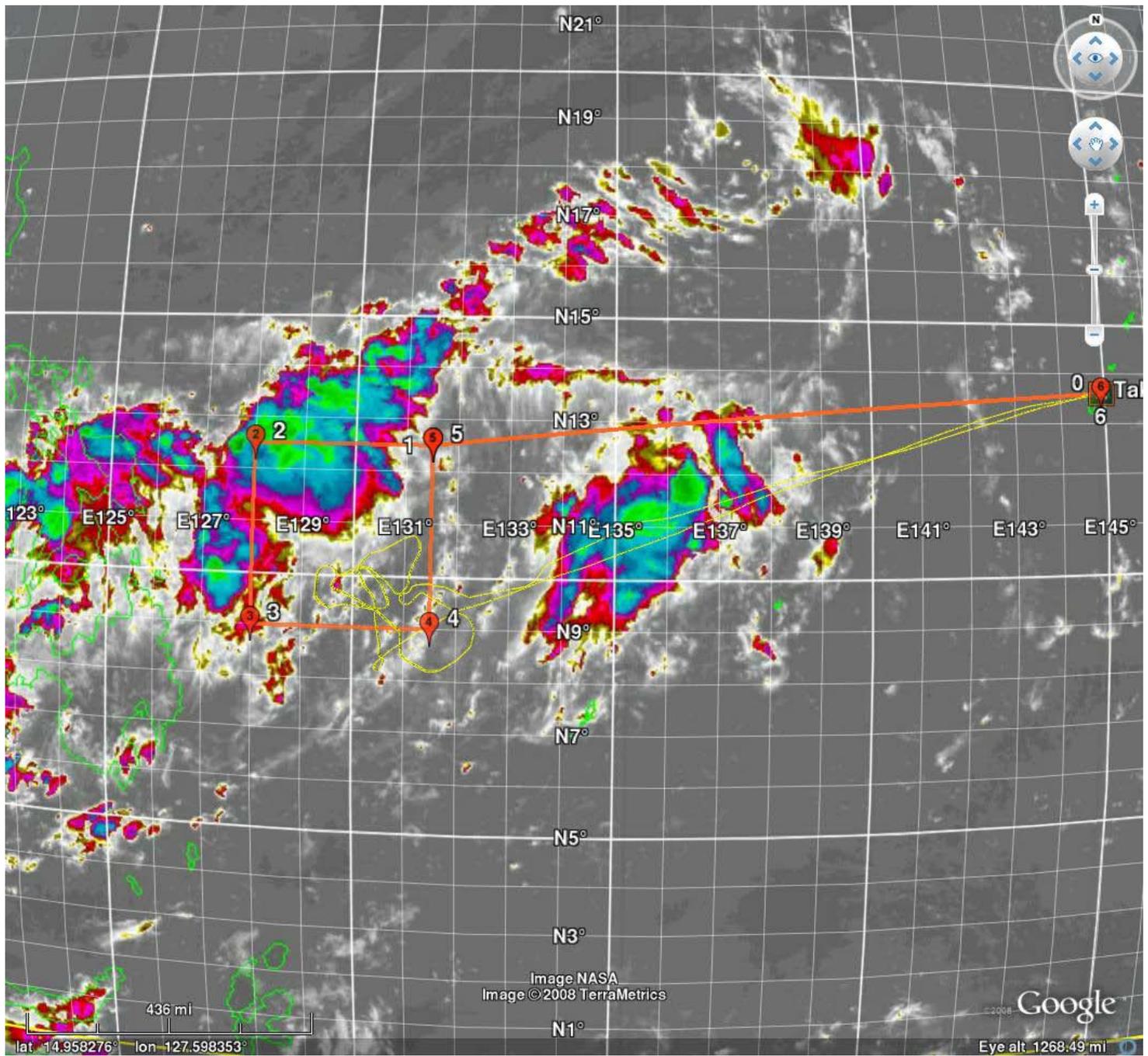
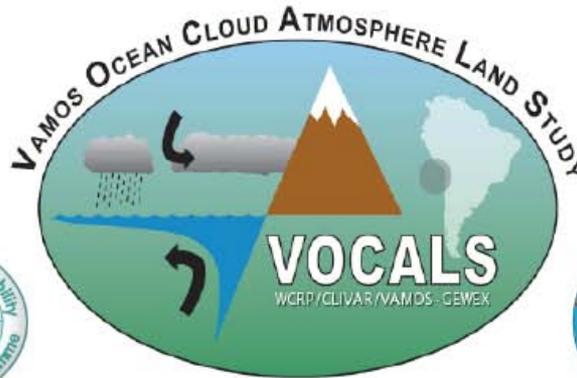


Image NASA
Image © 2008 TerraMetrics

© 2008 Google
Eye alt 1268.49 mi

lat 14.958276° lon 127.598353°



Goal: Elimination of CGCM systematic errors in the SEP, and improved model simulations of the coupled system in the region and global impacts of its variability.

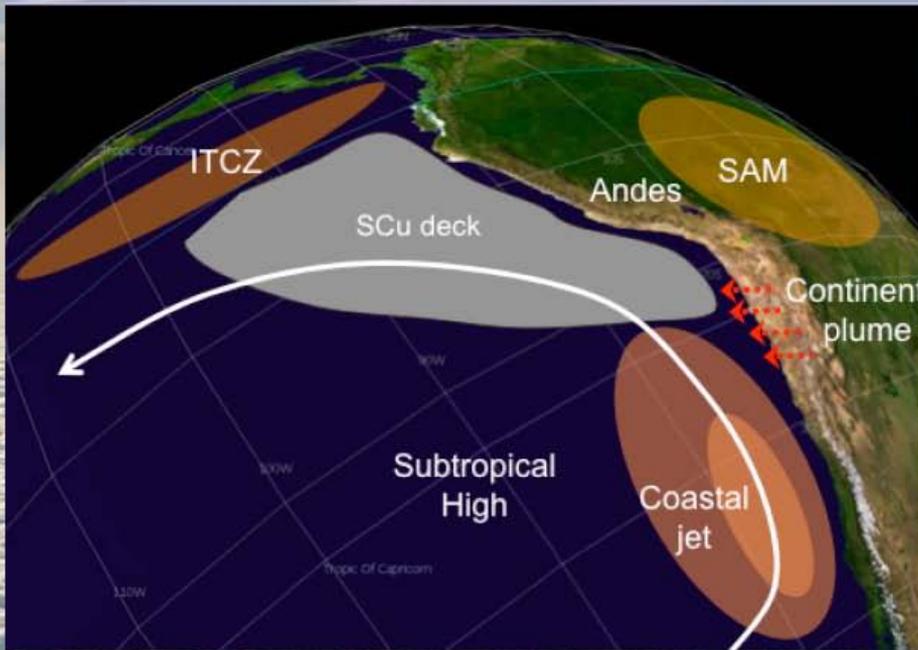
Goal: Improved understanding and regional/global model representation of aerosol indirect effects over the SEP.

www.eol.ucar.edu/projects/vocals

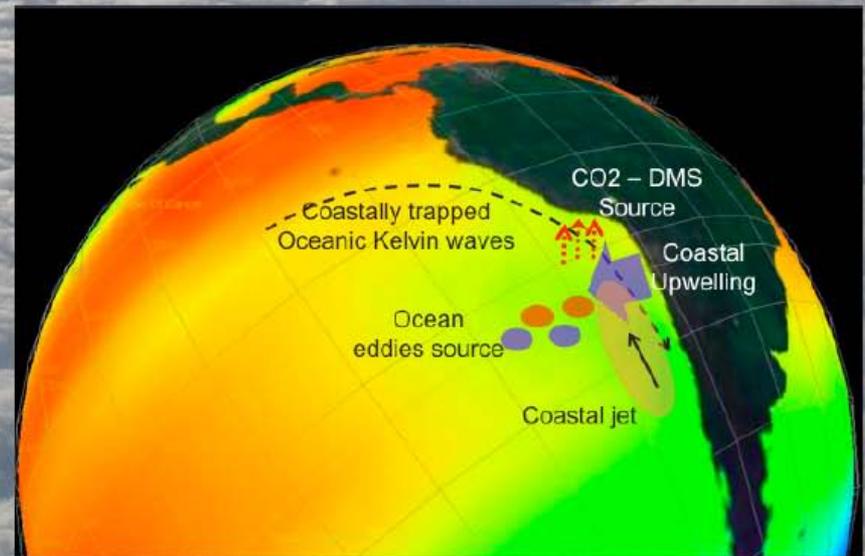


VOCALS Targets

- **Clouds-aerosol interaction**
- **Heat and nutrient transports in ocean**

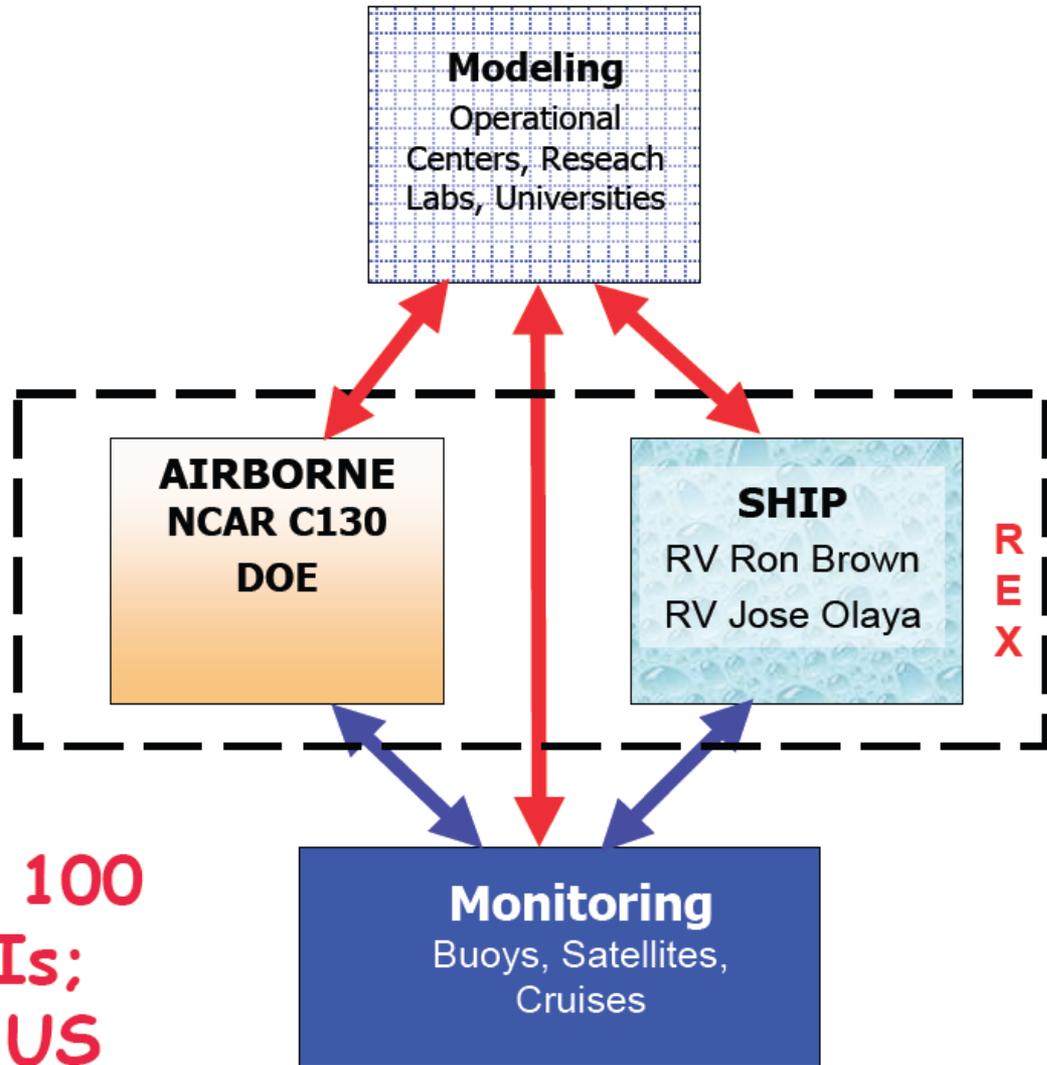


- **Upscale and downscale interactions with remote climates**
- **Better simulation by atmosphere-ocean GCMs**





ORGANIZATION



Numbers: 100
PIs-CoPIs;
~\$ 25M US

The aircraft



DoE ASP G-1

NSF C-130



CIRPAS Twin Otter

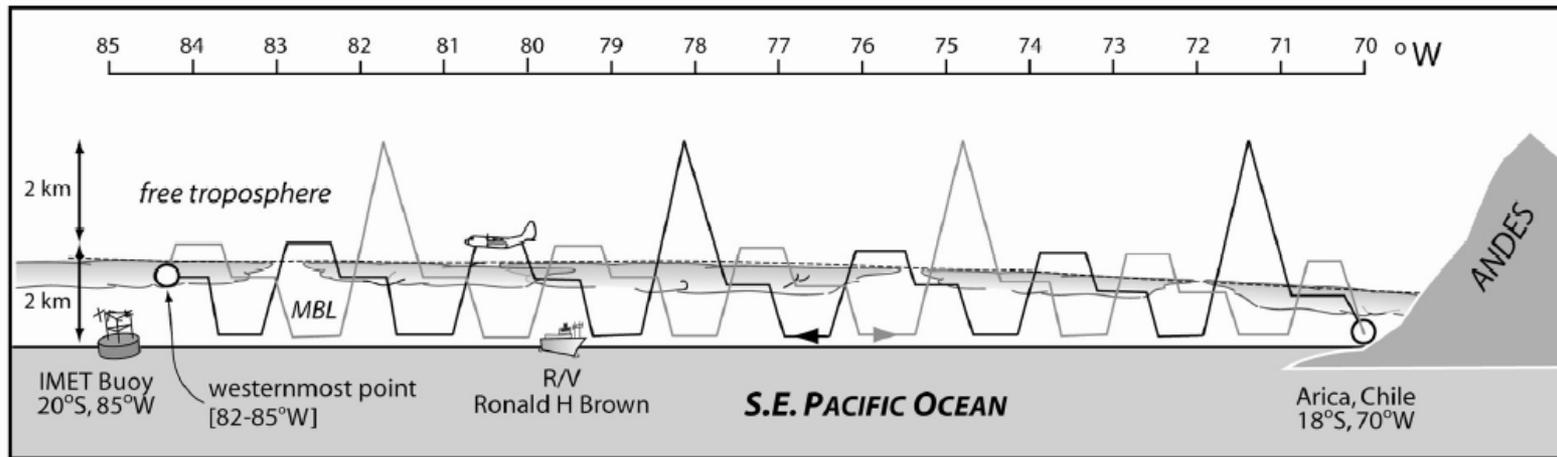


NERC Dornier 228



UK FAAM BAe-146

VOCALS-REx Cross-Section



Same local time (Take-off 3 am)
9 hour flight (C-130)
Same latitude (20°S)
5/6 flights in total
Cooperative sampling with 146/G-1
Encounters with RHB



VOCALS-REx Platforms and Sampling

Aircraft:

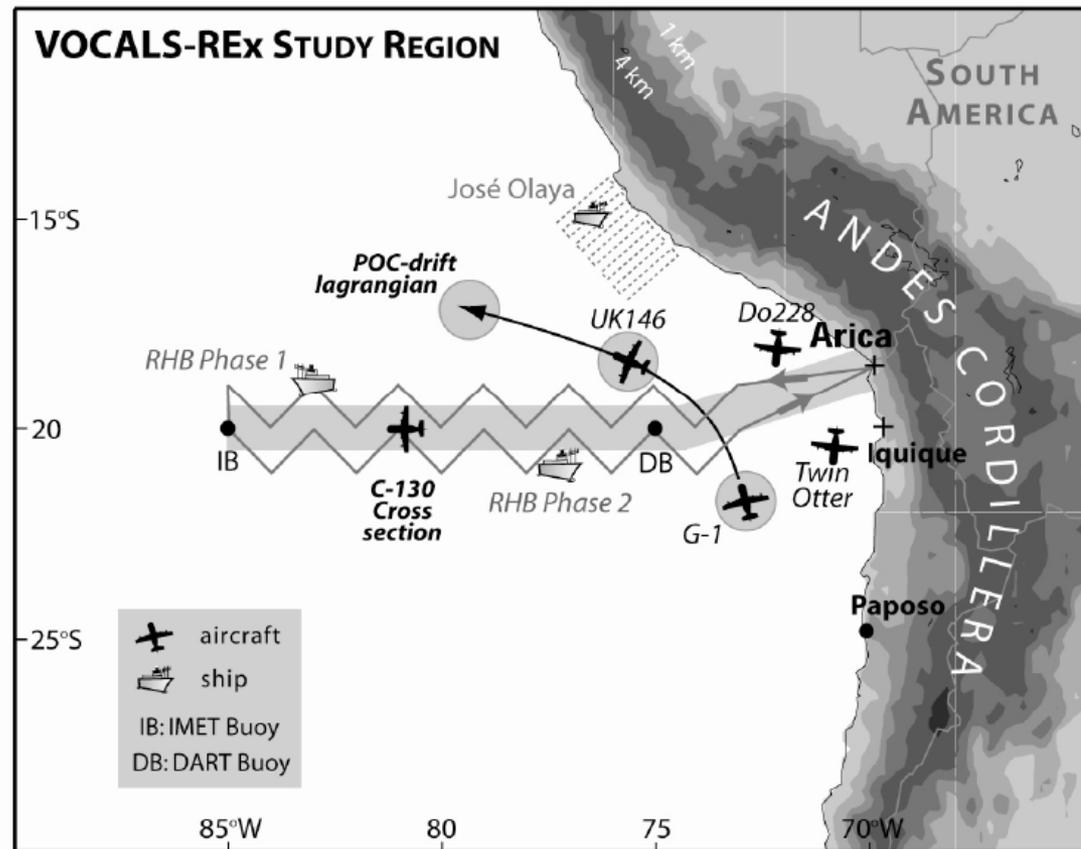
NSF C-130
CIRPAS Twin
Otter
DoE G-1
UK BAe-146
NERC Do 228

Ships:

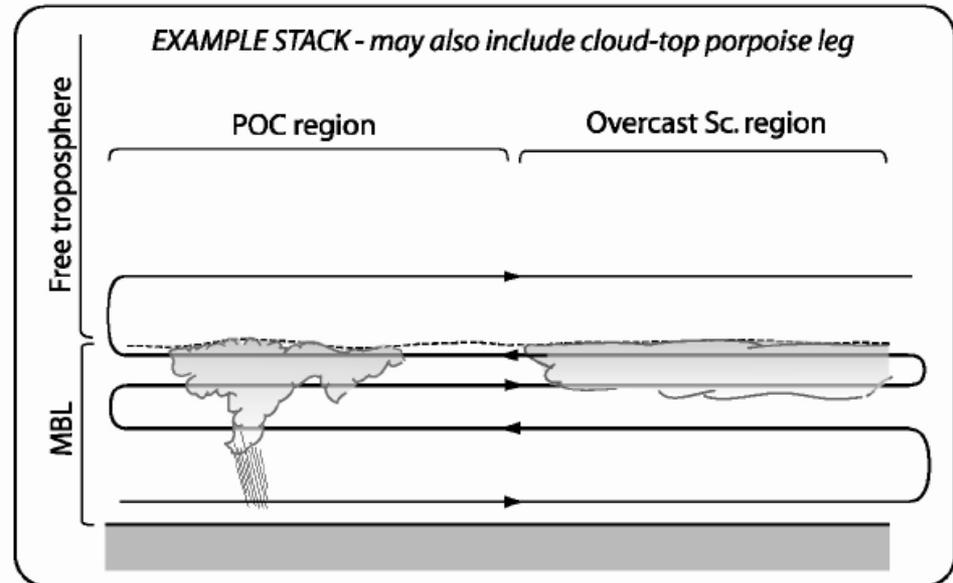
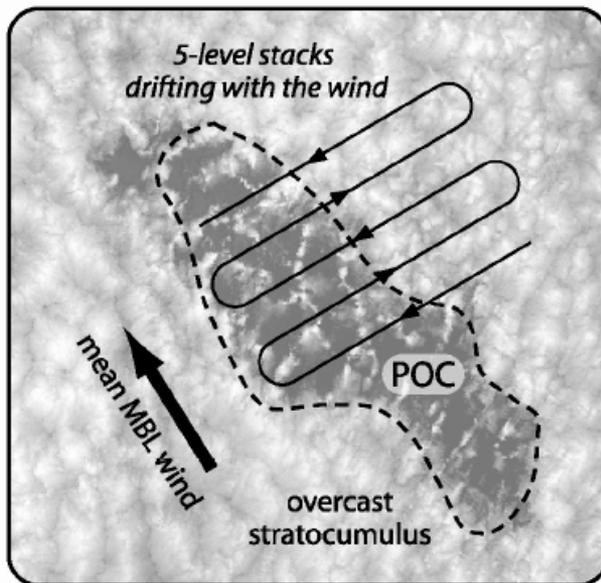
NOAA Ronald H
Brown
José Olaya

Land sites:

Iquique
Paposo

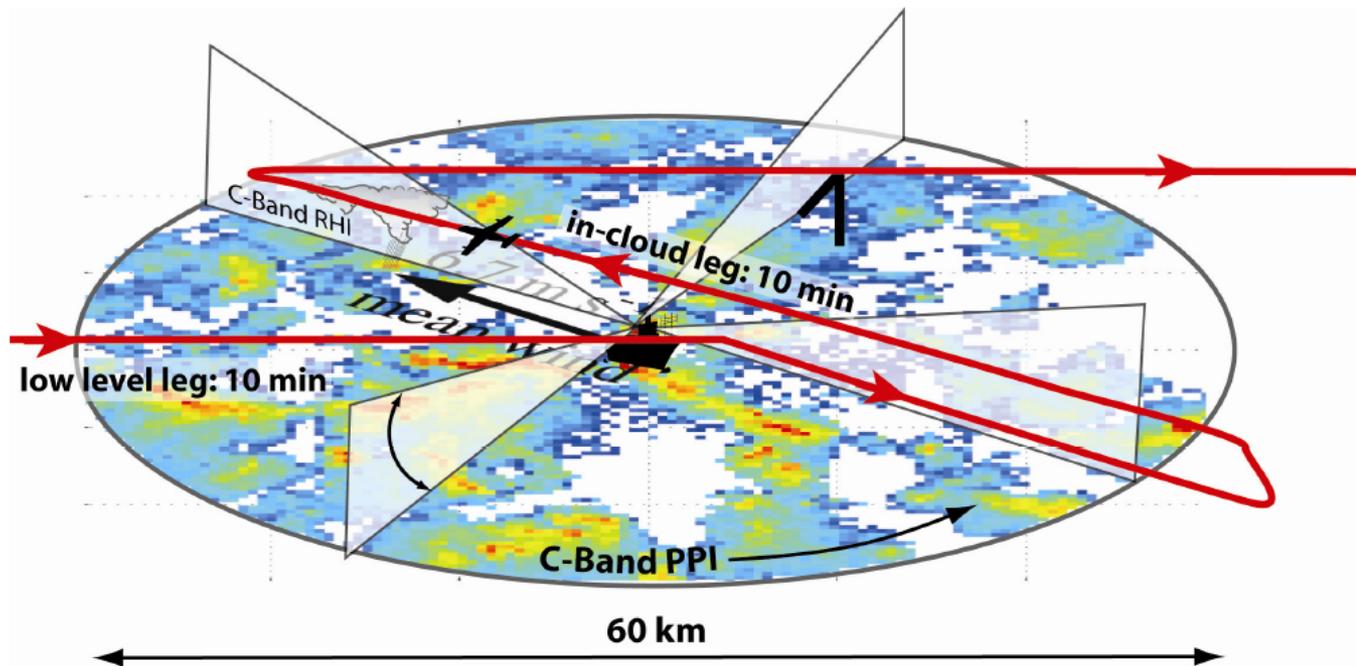


Flight-plan for *POC-Drift* missions

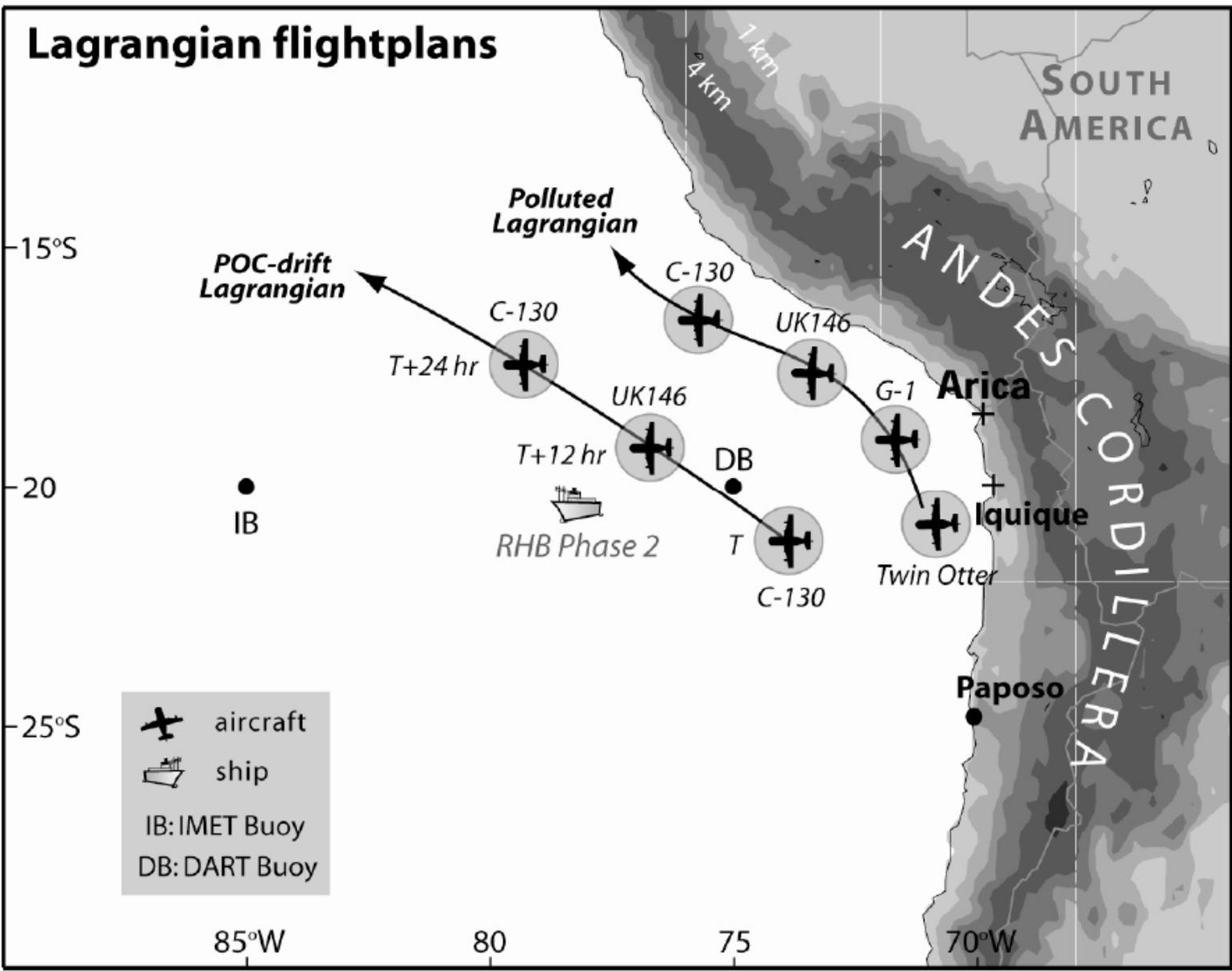


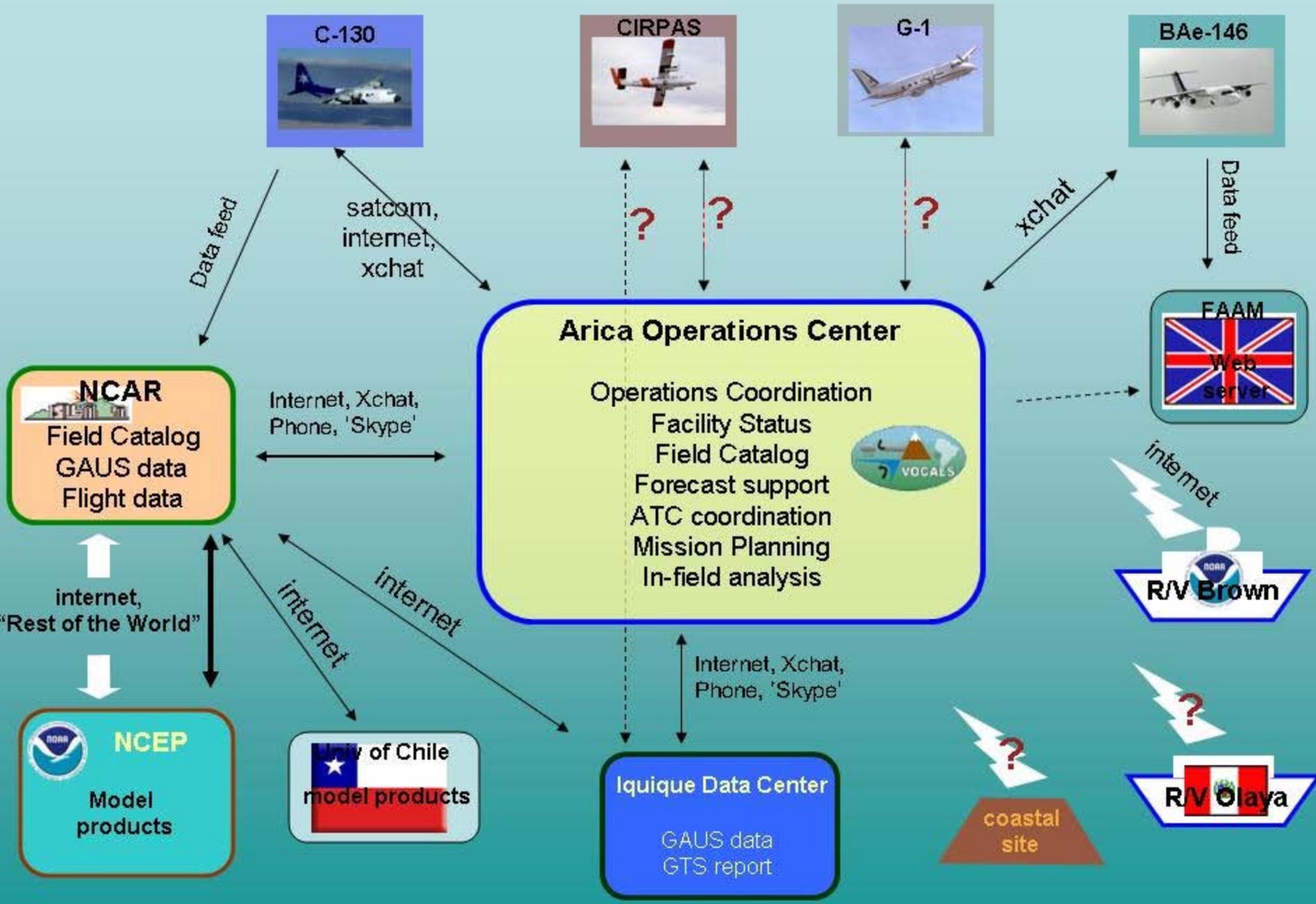
C-130/RHB Sampling

- Brief encounters of C-130 with RHB during cross sectional flights would incorporate an additional 30 minutes cosampling



Lagrangian flightplans





HIPPO

HIAPER Pole to Pole Observations



The “Collaborative Research: HIAPER Pole-to-Pole Observations (HIPPO) of Carbon Cycle and Greenhouse Gases Study” will measure cross sections of atmospheric concentrations approximately pole-to-pole, from the surface to the tropopause, four times during different seasons over a 2 year period. A comprehensive suite of atmospheric trace gases pertinent to understanding the Carbon Cycle will be measured. HIPPO will transect the mid-Pacific ocean and return either over the Eastern Pacific, or over the Western Atlantic.

All of the flights are essentially direct point-to-point routes with ongoing altitude changes. The plan is to have two maximum altitude ascents per flight, one in the first half and one in the second half, depending on the ability of the ATC to support altitude changes. Most of the flight will be conducted below RVSM (29,000 - 27,000 ft in different FIRs) in order to allow the GV to go up and down constantly to collect data at different altitudes throughout the troposphere. Ideally the flight would take off and go to FL430 for 15 min, then descend below RVSM and proceed in a sawtooth pattern between FL270 and FL50 with a 1,500 ft/min climb/ascent rate, then climb to FL450 near the end of the flight for about 15 min, descend below RVSM again and proceed to the airport.

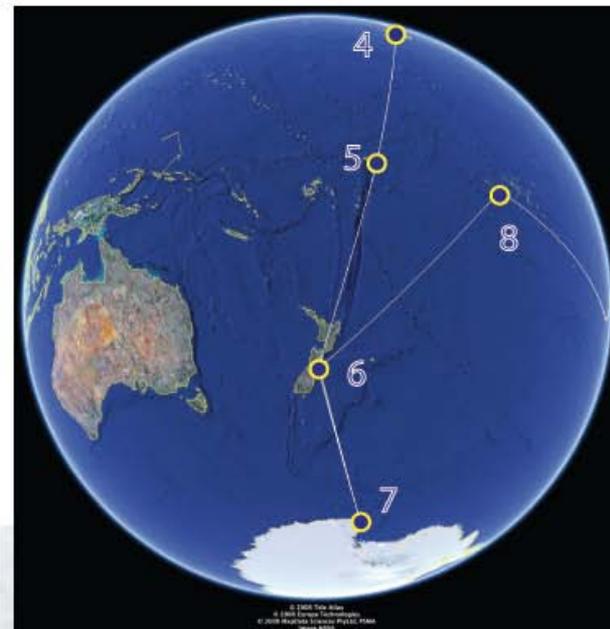
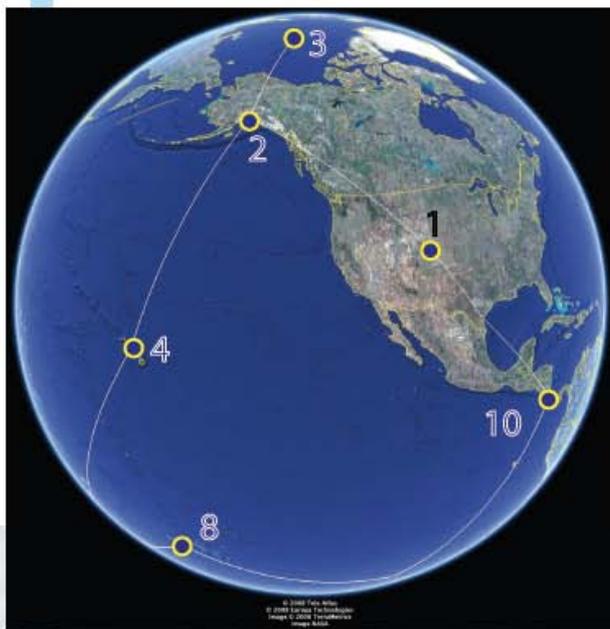
All flights will be followed by at least one no-flight, maintenance day and may be followed by a maintenance day and a rest day ("hard down" day).

HIPPO



atelv

1 - RMMA (Boulder CO) 2 - Anchorage 3 - North latitudes 4 - Honolulu 5 - Pago Pago



6 - Christchurch 7 - Southern Latitudes 8 - Tahiti 9 - Easter Island 10 - Costa Rica 11 - Corpus Christi, Tx



2009 tempo reduced by financial constraints ~ 2/3

5 sorties /day (vs normal 8)

~ 8 million lbs cargo (have done up to 14mill)

20th year for NYANG on Op. Deep freeze



U. S. AIR FORCE

0492

30492



NEW YORK AIR GUARD



