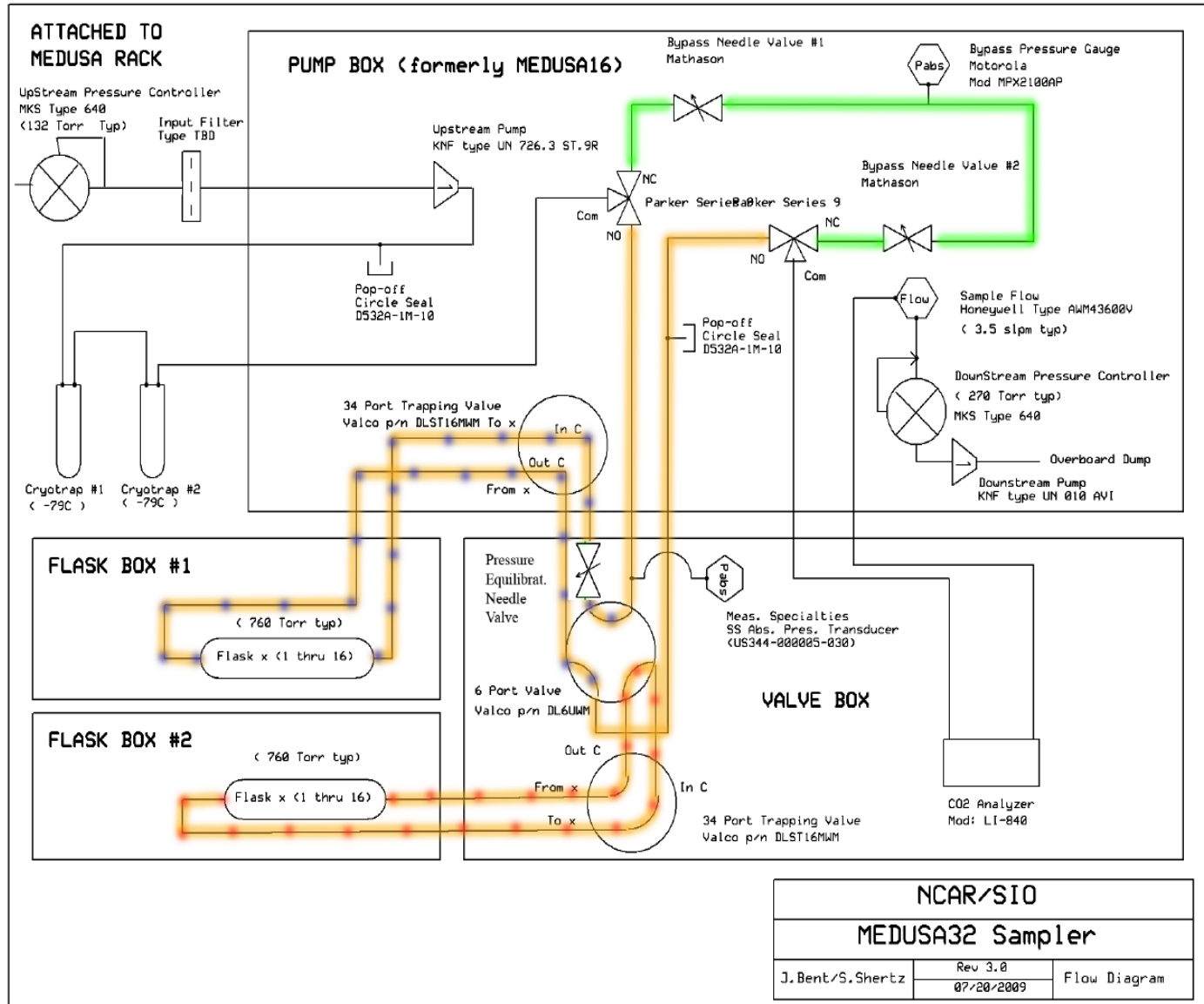


Figure 2.1. The MEDUSA rack, as stored between HIPPO missions, showing the locations of each of the four boxes. The dewar is located on the rear of the rack (at the left of the image), and can be seen in Figure 2.3.



NCAR/SIO		
MEDUSA32 Sampler		
J. Bent/S. Shertz	Rev 3.0 07/20/2009	Flow Diagram



Flask volume ~ 1.5 liters



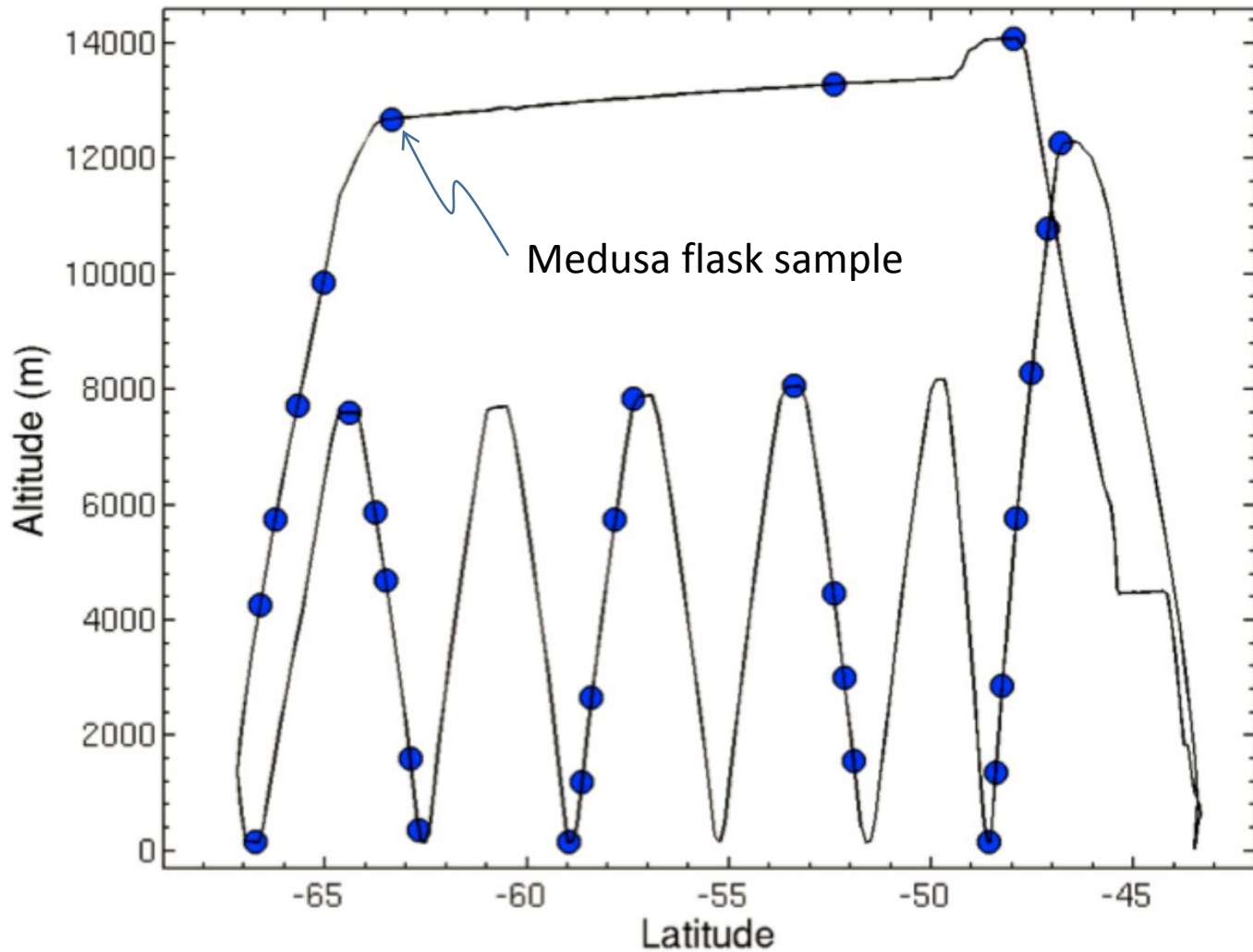


Figure 3.3. A typical Southern Ocean “return” flight track, HIPPO5 RF09, with locations of MEDUSA flask samples noted in blue. The GV aircraft started from Christchurch, NZ, flying saw-tooth maneuvers south, and returned to Christchurch at altitude.

Medusa Specifications:

Flask count: 32

Inlet: Rear-facing tube within HIMIL

Flushing time: 70-120 sec

Flow rate: ~ 1500 to 3500 sccm

Elevation range: 0 to 45000ft

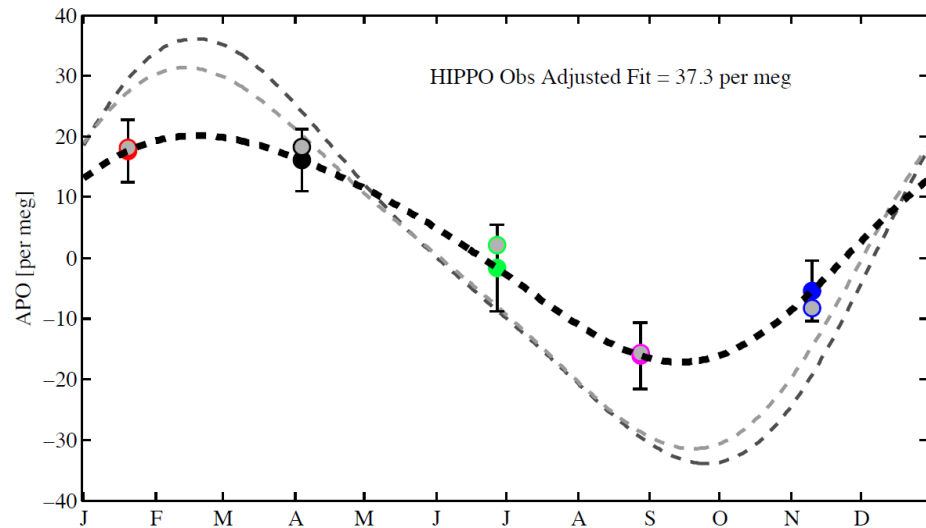
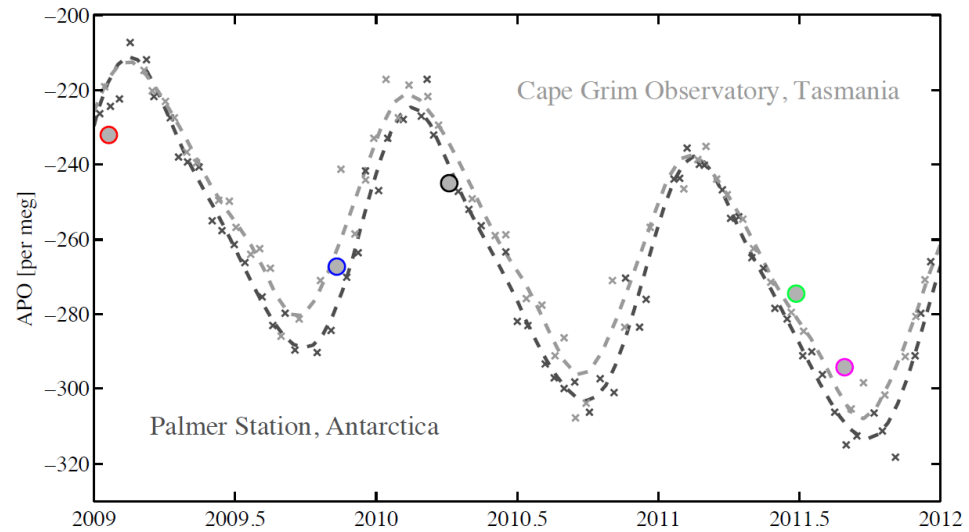
Vertical resolution: ~1000m

Analyzed variables:

CO_2 , O_2/N_2 , Ar/N_2 , $\delta^{13}\text{C}-\text{CO}_2$, $\delta^{18}\text{O}-\text{CO}_2$, ($^{14}\text{C}-\text{CO}_2$)

Seasonal cycles in Atmospheric Potential Oxygen

$$\text{APO} = \text{O}_2 + 1.1 \text{ CO}_2$$



Palmer Station flask record

