SUMMARY STATISTICS AND SPECIFICATIONS FOR THE AOS AIRBORNE MONITORING PROGRAM OF 2005

The same information is presented for each observed site. It consists of the flight log, statistical distribution of flights per time interval, the plot of all measures of responsivity for the flights with the fit of absolute responsivity, and plots showing any time development of responsivity relative to the absolute relationship.

I. STATISTICS OF THE FLIGHTS

Time Intervals for the flights are 3 hours long and eight in number. They begin at 0:00 and cover the full 24 hours.

Sites: There is a single site presently. It is Curtis Ranch or AmeriFlux (40.734N, 104.301W). Others are planned later in the year for South America, Europe and other places in North America.

A. NORTH AMERICA

1. CURTIS RANCH; AMERIFLUX (40.734N, 104.301W)

FLIGHTS (30)	PROFILES (97)	TIME INTERVAL	VERIFICATION (4)
1-7	1	9:00 – 12:00	**YES**
1-8	2	9:00 – 12:00	NO
1-13	4	9:00 – 12:00	NO
1-14	2	9:00 – 12:00	**YES**
1-17	4	9:00 – 12:00	NO
1-19	2	9:00 – 12:00	NO
1-24	2	12:00 – 15:00	NO
1-25	2	9:00 – 12:00	NO
1-26	2	9:00 – 12:00	NO
1-28	4	15:00 – 18:00	NO
1-29	2	12:00 – 15:00	NO
2-1	4	6:00 – 9:00	NO
2-2	4	12:00 – 15:00	NO
2-3	4	15:00 – 18:00	NO
2-4	4	12:00 – 15:00	NO
2-5	2	15:00 – 18:00	**YES**
2-6	CANCELLED DUE TO INCLEMENT WEATHER.		
2-7	CANCELLED DUE TO INCLEMENT WEATHER.		

2-8	CANCELLED DUE TO INCLEMENT WEATHER.		
2-9	TECHNICAL FAILURE BY AOS EMPLOYEE		NO
2-10	4	18:00 – 21:00	NO
2-11	4	18:00 – 21:00	NO
2-12	AIRCRAFT NOT AVAILABLE.		
2-13	4	18:00 – 21:00	NO
2-14	CANCELLED DUE TO SEVERE TURBULENCE.		
2-15	CANCELLED DUE TO INCLEMENT WEATHER.		
2-16	CANCELLED DUE TO INCLEMENT WEATHER.		
2-17	4	21:00 – 24:00	NO
2-18	4	15:00 – 18:00	**YES**
2-19	DEPLOYMENT FOR BALLOON INSTEAD		
2-20	4	18:00 – 21:00	NO
2-21	AIRCRAFT NOT AVAILABLE (MECHANICAL)		
2-22	CANCELLED DUE TO INCLEMENT WEATHER		
2-23	CANCELLED TO WORK ON DRIER.		
2-24	4	21:00 – 24:00	NO
2-25	4	21:00 – 24:00	NO
2-26	4	18:00 – 21:00	NO
2-27	4	18:00 – 21:00	NO
2-28	4	21:00 – 24:00	NO
3-1	CANCELLED DUE TO INCLEMENT WEATHER		
3-2	CANCELLED DUE TO INCLEMEN T WEATHER		
3-3	4	00:00 – 03:00	NO
3-			

FREQUENCY DISTRIBUTION OF SUCCESSFUL FLIGHTS

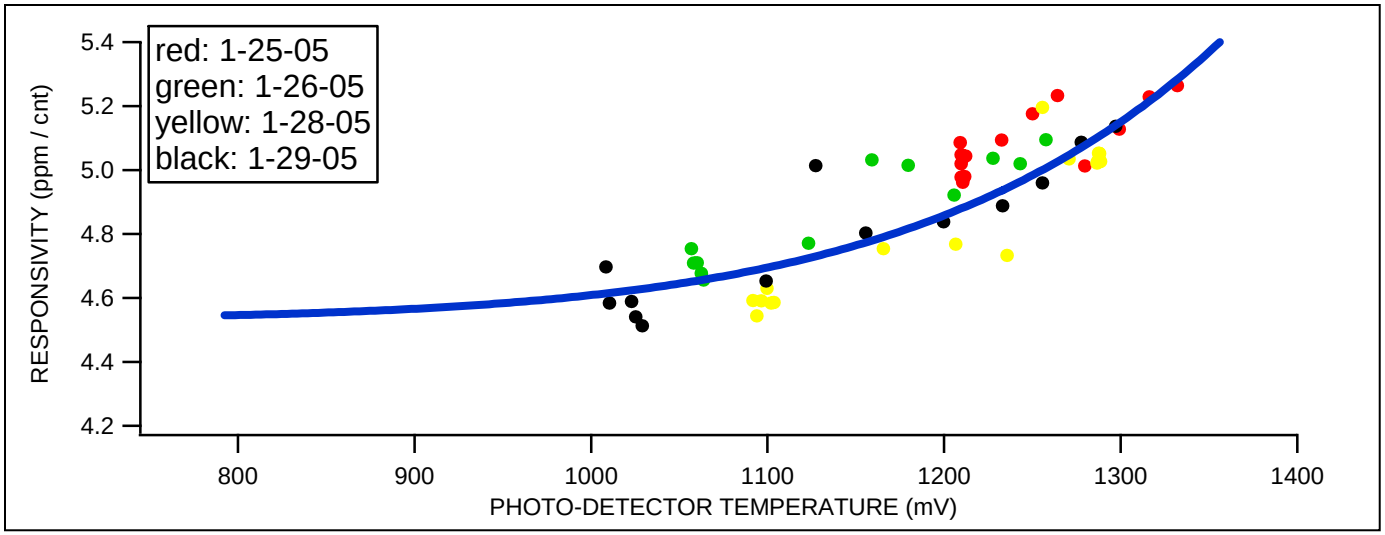
0:00 – 3:00	**1**
3:00 – 6:00	**0**
6:00 – 9:00	**1**
9:00 – 12:00	**8**
12:00 – 15:00	**4**
15:00 – 18:00	**4**
18:00 – 21:00	**6**
21:00 – 00:00	**5**

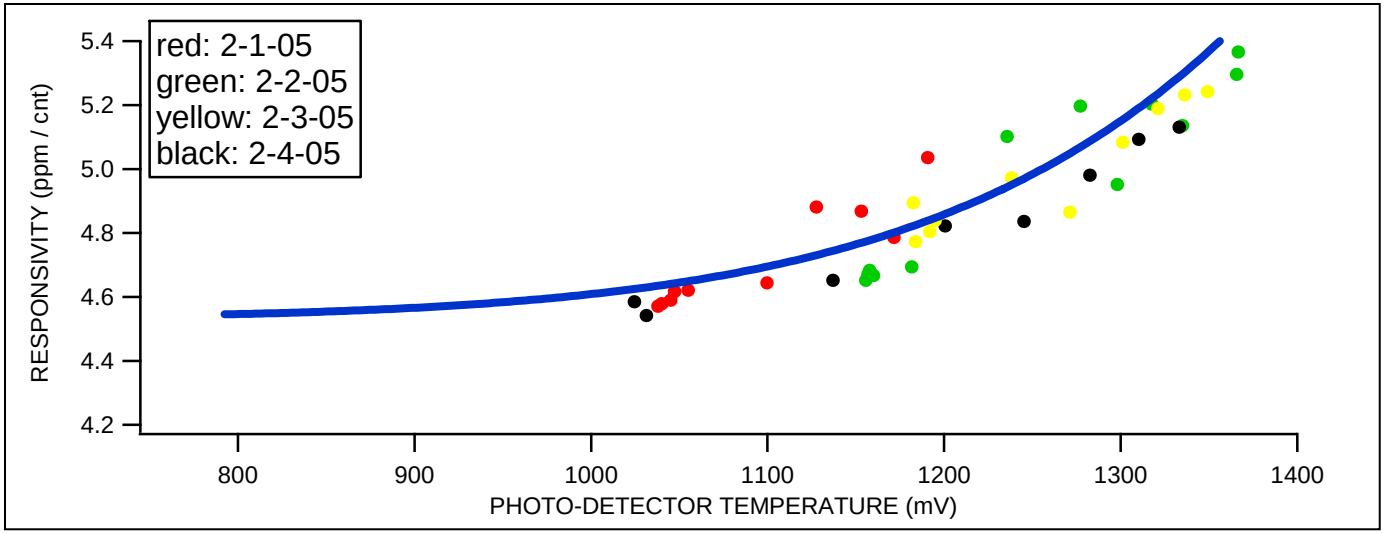
II. RESPONSIVITY

Responsivity is given by the calibrated difference between the two references divided by the signal from the analyzer. Measures were made both on the tarmac prior to the flight and during the flight itself.

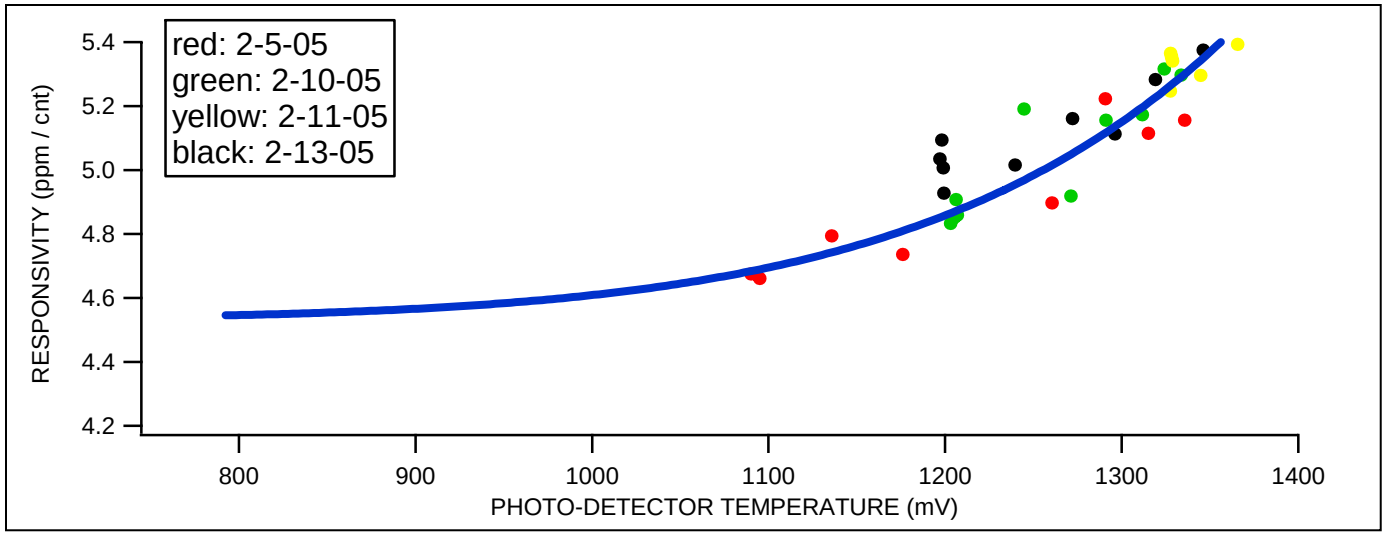
Absolute Responsivity is a quadratic fit to the individual measures of responsivity versus temperature of the photo-detectors as measured by their thermistors in mVolt.

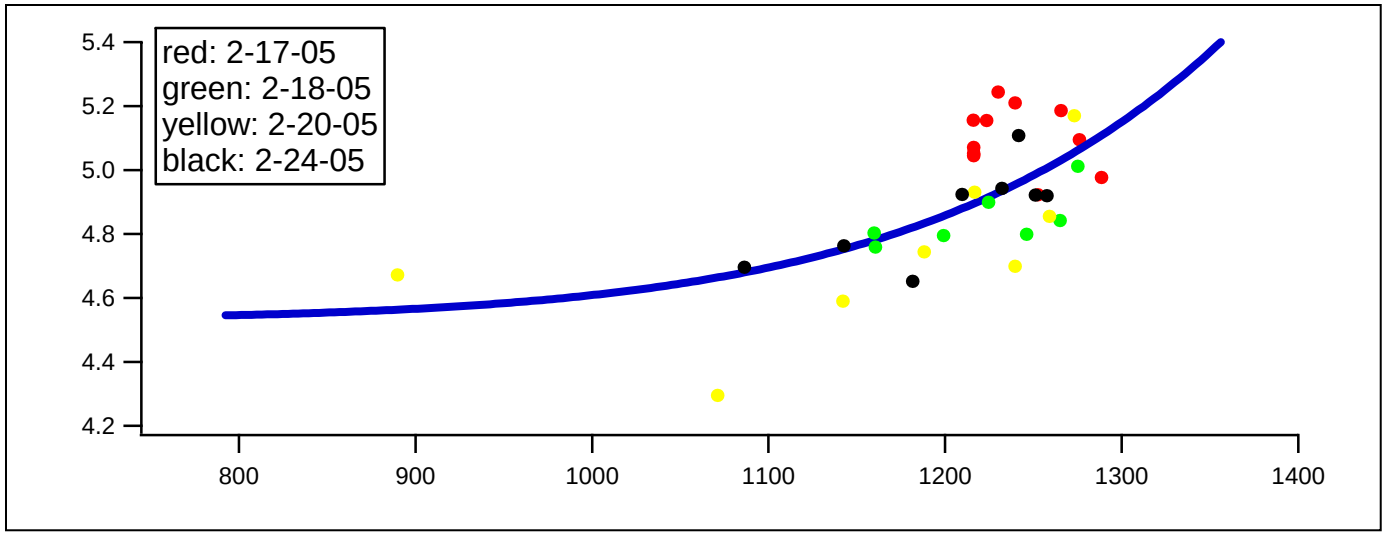
TIME DEVELOPMENT OF ABSOLUTE RESPONSIVITY



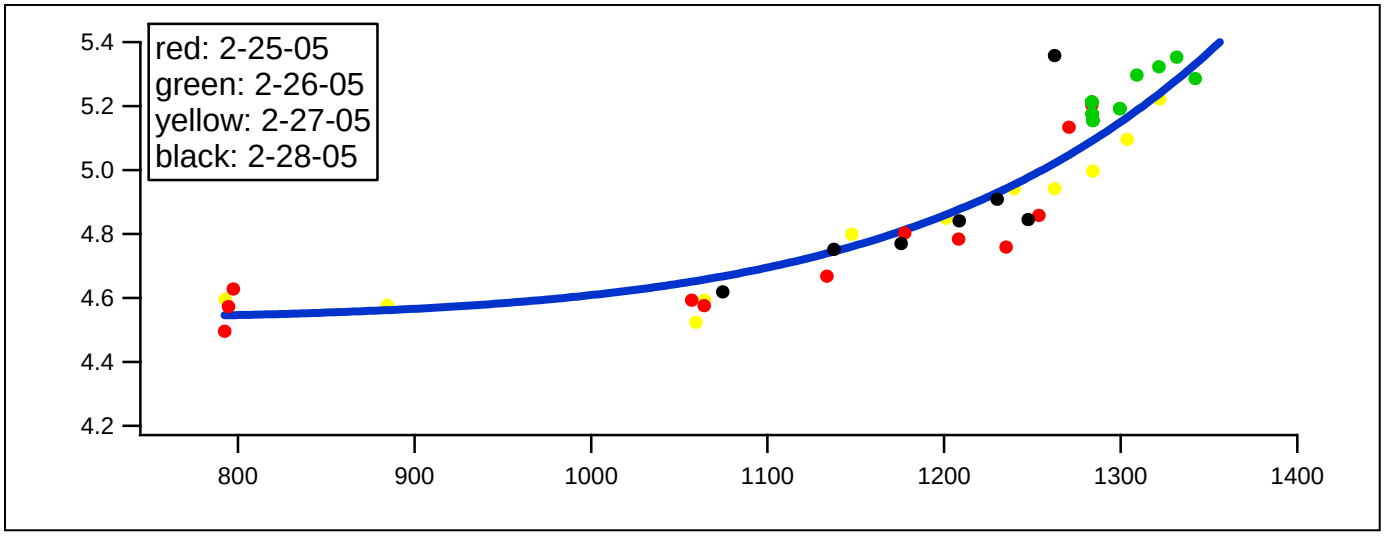


CONTINUE: TIME DEVELOPMENT OF ABSOLUTE RESPONSIVITY

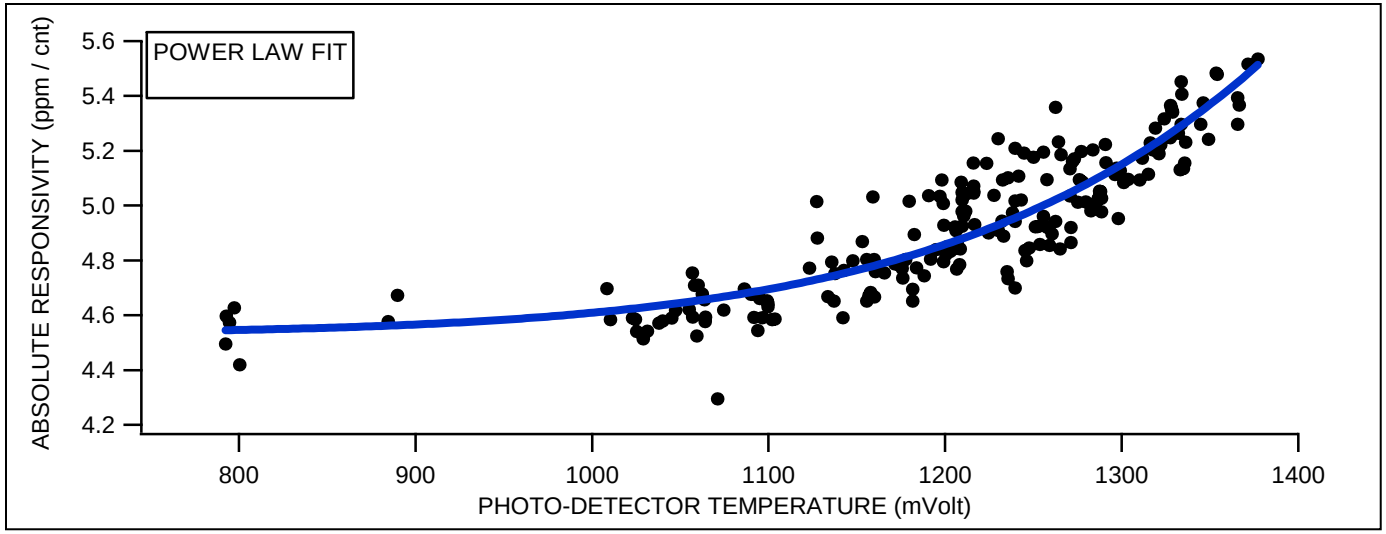




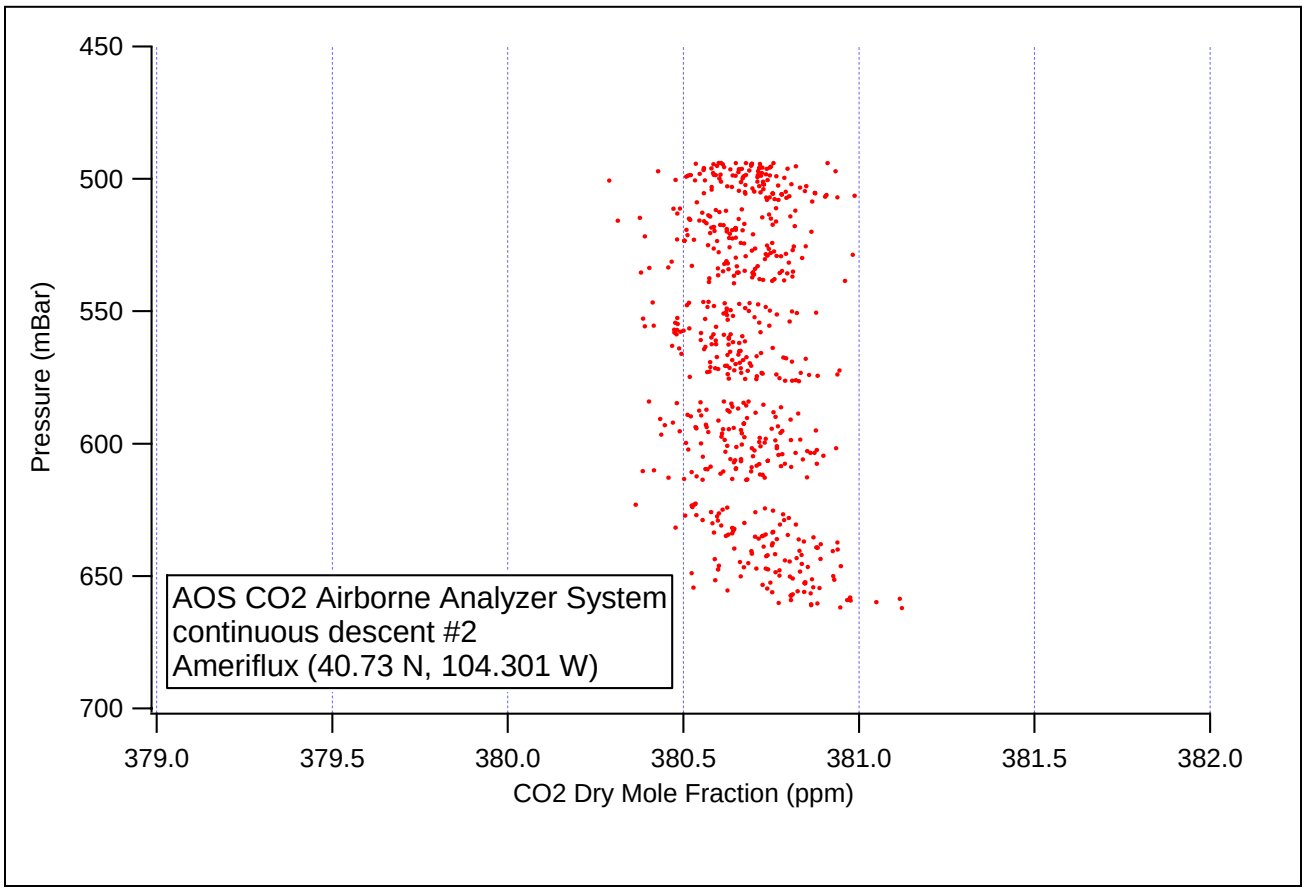
CONTINUE: TIME DEVELOPMENT OF ABSOLUTE RESPONSIVITY



ABSOLUTE RESPONSIVITY



III. NOISE



Above are the top four segments of descent #2 of 2-13-05 where the atmospheric concentrations changed very little with altitude. Each segment lasted ~ 3 minutes. The rms noise is 0.13 ppm / sec for CO_2 dry mole fraction, and it includes any contribution from fluctuations from the atmosphere. There is a total of 582 points. There is no indication of transients associated with the gas switching needed to activate the evaluation of differential zeros between the segments.