

Final PODEX Scorecard: February 15, 2013

Table 1. Prioritized scorecard targets/goals

Priority	Description	Preferred location	Achieved by AirMSPI y/n , date	Achieved by PACS y/n , date	Achieved by RSP y/n , date	Required Coordination w/ DISCOVER-AQ (spec. instruments)
1a	Completely cloud-free, aerosol-free conditions	over ocean	Yes, 1/14/2013 no DAQ data; 2/6/2013 on transit with HSRL (not aerosol free)	2/6/2013 on transit with HSRL (not aerosol free)	Yes, 1/14/2013 no DAQ data; 2/6/2013 on transit with HSRL (not aerosol free)	Yes (B200 flew over water on 2/6/2013 – None with P3)
1b	Completely cloud-free, aerosol-free conditions	Rosamond dry lake & DAOF parking lot	Yes, Rosamond, 1/31/2013	Yes, Rosamond, 1/31/2013	Yes, Rosamond, 1/31/2013	No (DAOF attempts (2) were cloud contaminated)
2	Targets of opportunity: high aerosol loading (any type)	Any surface				Yes (aerosol in situ, HSRL)
3	Stratus cloud deck	Ocean	Yes, 2/3/2013	Yes, 2/3/2013	Yes 2/3/2013	Yes (CAPS, HSRL) (CAPS but no HSRL on 2/3/2013)
4	Moderate aerosol	Ocean (beyond continental shelf)	2/6/2013 just off the LA coast	2/6/2013 just off the LA coast	2/6/2013 just off the LA coast	Yes (B200 flew over water on 2/6/2013 – None with P3)
5	Moderate aerosol	Dark land surface	Yes 1/16/2013, 1/18/2013 (Hanford) 1/31/2013 2/6/2013	Yes 1/18/2013, 1/20/2013 (optimizing settings) 1/31/2013 2/6/2013	Yes 1/16/2013, 1/18/2013, 1/20/2013, 1/31/2013, 2/6/2013	Yes (aerosol in situ, HSRL) (All with excellent DAQ coordination)
6	Moderate aerosol	Bright land surface	Yes 1/31/2013 2/6/2013	Yes 1/18/2013, 1/20/2013, 1/31/2013, 2/6/2013	Yes 1/16/2013, 1/18/2013, 1/20/2013, 1/31/2013, 2/6/2013	Yes (aerosol in situ, HSRL) (All with excellent DAQ coordination)

7	Moderate aerosol	Urban surface (LA?)	Yes 1/18/2013 (Bakersfield) 1/31/2013 2/6/2013	Yes 1/18/2013, 1/31/2013, 2/6/2013	Yes 1/16/2013, 1/18/2013, 1/20/2013, 1/31/2013, 2/6/2013	Yes (aerosol in situ, HSRL) (All with excellent DAQ coordination)
8	Cirrus	No underlying clouds	Yes, 1/22/2013 over land 2/1/2013 & 2/6/2013 over water (much cloud below)	Yes, 1/22/2013 over land 2/1/2013 & 2/6/2013 over water (much clouds below)	Yes, 1/22/2013 over land 2/1/2013 & 2/6/2013 over water (much cloud below)	No (Good DAQ coordination on 1/22/2013) (HSRL coordination on 2/6/2013)
9	Broken Stratus	Ocean	Yes, 1/28/2013 Open cells 2/6/2013 with HSRL	Yes, 1/28/2013 Open cells; partial gain saturation. 2/6/2013 with HSRL	Yes 1/28/2013- Open cells, only 2 clouds (instr prob) 2/6/2013 with HSRL	Yes (aerosol in situ, HSRL) (CAPS on 1/28/2013) (HSRL on 2/6/2013)

Notes:

1/14/2013: No CPL, no PACS, AirMSPI available for first science leg out over water away from principal plane. Good low aerosols optical depth example. Good RSP and AirMSPI dark target observations. AirMSPI obtained one data run during leg near principal plane so also acquired data for bright (glint) target comparison.

1/16/2013: Short valley flight, terminated early when AMS and AirMSPI were no longer working. Good legs in valley with wide dynamic range of reflectance including water and snow. CPL and DISCOVER-AQ operating,

1/18/2013: Valley flights in co-ordination with DISCOVER-AQ and run up to Tahoe for AMS calibration. Large bright snow fields and partial snow cover next to Lake Tahoe can be used to test aerosol retrievals over snow/determine polarized BRDF of snow. AirMSPI worked part of flight, PACS worked entire flight. Good dynamic range in surface reflectance and moderate aerosol loads.

1/20/2013: Valley flights in co-ordination with DISCOVER-AQ and run along MISR path that includes some snow fields. Again large dynamic range in reflectance with moderate well characterized aerosol loads. AirMSPI had a disk failure just before takeoff and did not acquire data.

1/22/2013: Cirrus over aerosol in the valley with DISCOVER-AQ. Variable cirrus optical depths over moderate aerosol load. Excellent test for aerosol retrievals under cirrus and cirrus retrievals over heterogeneous land surface. Again valley provides large dynamic range in surface reflectance including some urban surfaces during overpasses of airfields/towns. All polarimeters were functioning.

1/28/2013: Stratus off-shore with DISCOVER-AQ. Broken stratus (open cell, scalloped pattern) with varying cloud macro- and microphysical properties. Faint aerosol layer above cloud at 6600 ft. Operator error caused RSP to be turned off and freeze. Instrument detectors are undamaged but vacuum is not holding so IR detectors cannot be cooled. Cannot be repaired during PODEX.

1/31 /2013: Clear sky over aerosol in the Valley with DISCOVER-AQ. No cirrus. Should be excellent test for aerosol retrievals with DAQ evaluation data. Extended run over the northern valley for DAQ coordination. Measurements over snow and snow covered lakes west and north of Lake Tahoe. Calibration run over Rosamond at the end of the flight. All polarimeters functioned.

2/1/2013: Cirrus flight over water southwest of LA. During most of the flight, cirrus was present. During some of the flight, liquid altostratus layer at 8 km was present. During only a small portion of the flight, some low PBL clouds were present. Somewhat complex case. Data collected over AERONET stations near LA at the beginning of the flight may have had some cirrus present; at the end of the flight, data collected over AERONET stations near LA had cirrus present. All polarimeters functioned.

2/3/2013: Stratus flight west of San Francisco. Fairly solid stratus deck observed over water west of San Francisco during nearly entire flight. P3 support with CAPS; no HSRL support. Very little cirrus interference. All polarimeters functioned. Excellent case.

2/6/2013: Combined valley-ocean flight. First part of flight was over the valley simultaneous with DAQ P3 and B200 flights. Most of the eastern part of the valley was covered by low clouds with some fog. Moderate-high AOT (AERONET reported ~0.2-0.3 at 500 nm for those stations that did report) was observed over western-central parts of the valley. B200/HSRL-2 and P3 observed aerosol above clouds over the valley. Clear skies observed over water on transit to and from the ocean region. Over the ocean study region, scattered/broken low stratocumulus were observed. HSRL-2, CPL, and MODIS showed significant (>0.2) AOD just off the coast of LA. P3 did not fly over the water; B200/HSRL-2 did fly over the water. All polarimeters functioned.