



Simultaneous Observations of the LA Basin by GOSAT, TCCON, and OCO-2 during OCO-2 Pre-launch Testing

Gold River Guides

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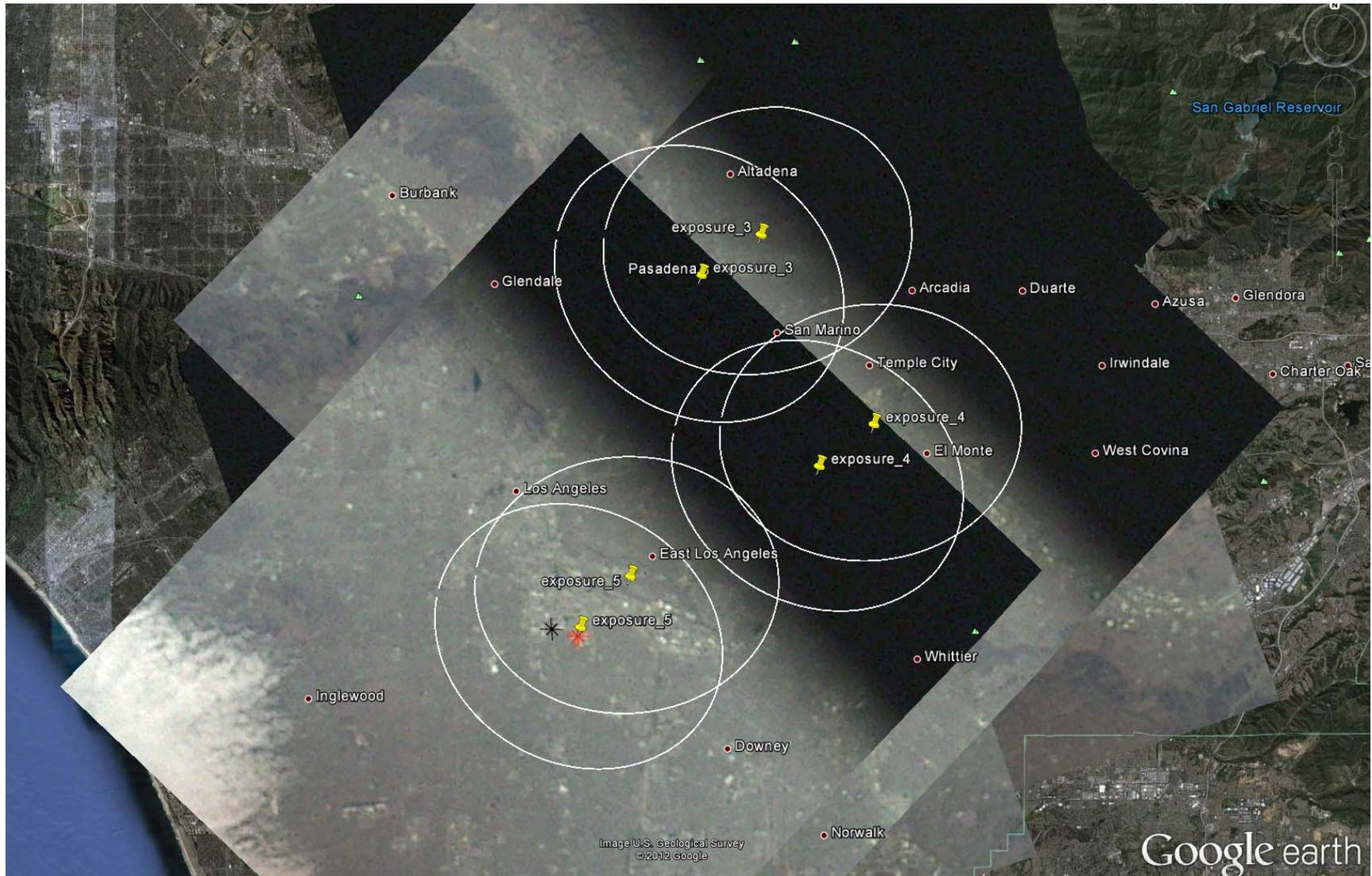


The OCO-2/GOSAT Observation Sequence

- The first simultaneous GOSAT, OCO-2, and TCCON observations of the LA Basin were recorded on Friday, 20 April and Saturday, 21 April.
- On Friday, the GOSAT TANSO-FTS collected targeted observations near JPL, Caltech, and downtown LA as it flew just to the east of LA on orbit path 36 at 1:47 PM Pacific Daylight Time.
- The OCO-2 flight instrument was collecting heliostat observations and the JPL TCCON station was recording near simultaneous up-looking atmospheric measurements to calibrate the OCO-2 instrument line shape.
- The Caltech TCCON station is still under construction, but was performing tests at this time, and may have also collected a few soundings during this overpass.
- Near simultaneous OCO-2 and JPL TCCON observations were also collected Saturday 21 April, as GOSAT targeted the LA basin from the west, on orbit path 37.
- These observations will be analyzed as part of the ACOS GOSAT vicarious calibration program, and used to establish the relative performance of the OCO-2 and GOSAT TANSO-FTS instruments



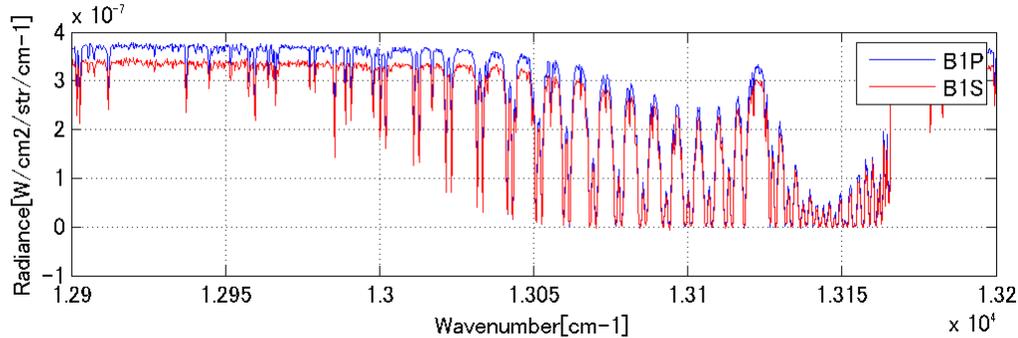
GOSAT Targeting of LA Basin



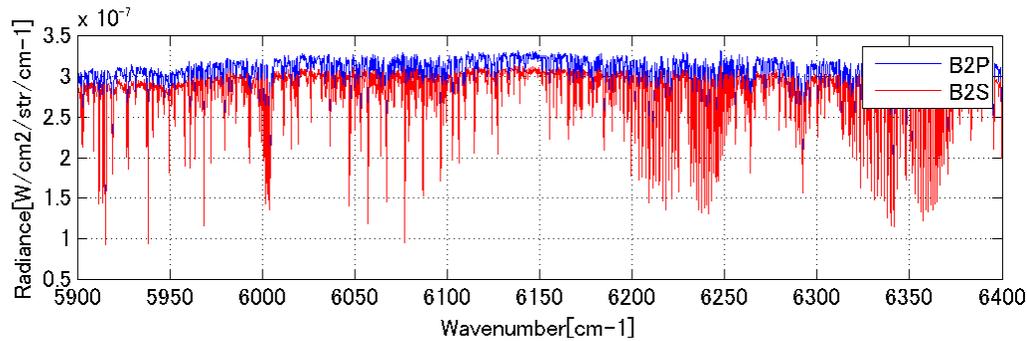


GOSAT Spectra Collected over LA on 20 April 2012

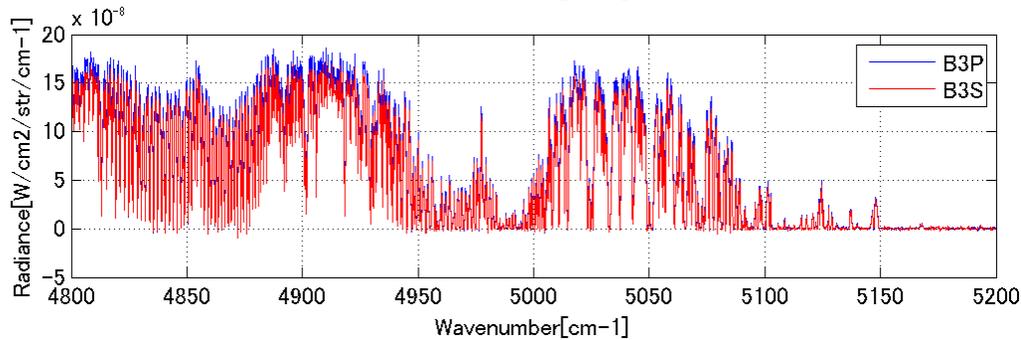
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Obs=SPOD AT=8.6298 ATerr=-0.0069 CT=-27.9934 CTerr=-0.0007 Lat=34.1405 Lon=-118.0924



Band 1:
 O_2 A-
Band



Band 2:
Weak CO_2
Bands



Band 3:
Strong CO_2
Band



OCO-2 in the JPL Bldg 144 10' Chamber



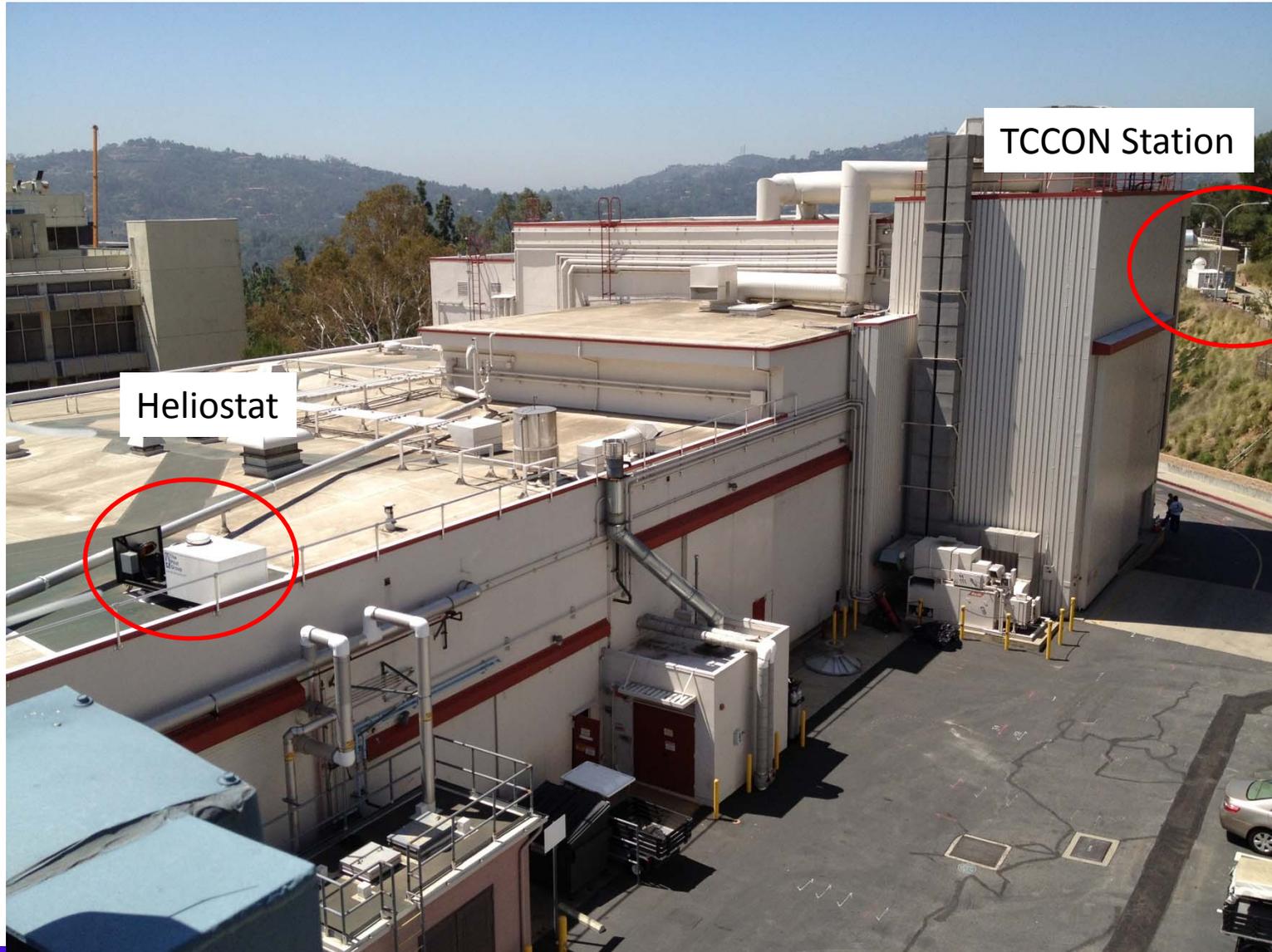


OCO-2 TVAC Shift Change Meeting





Heliostat and TCCON Station



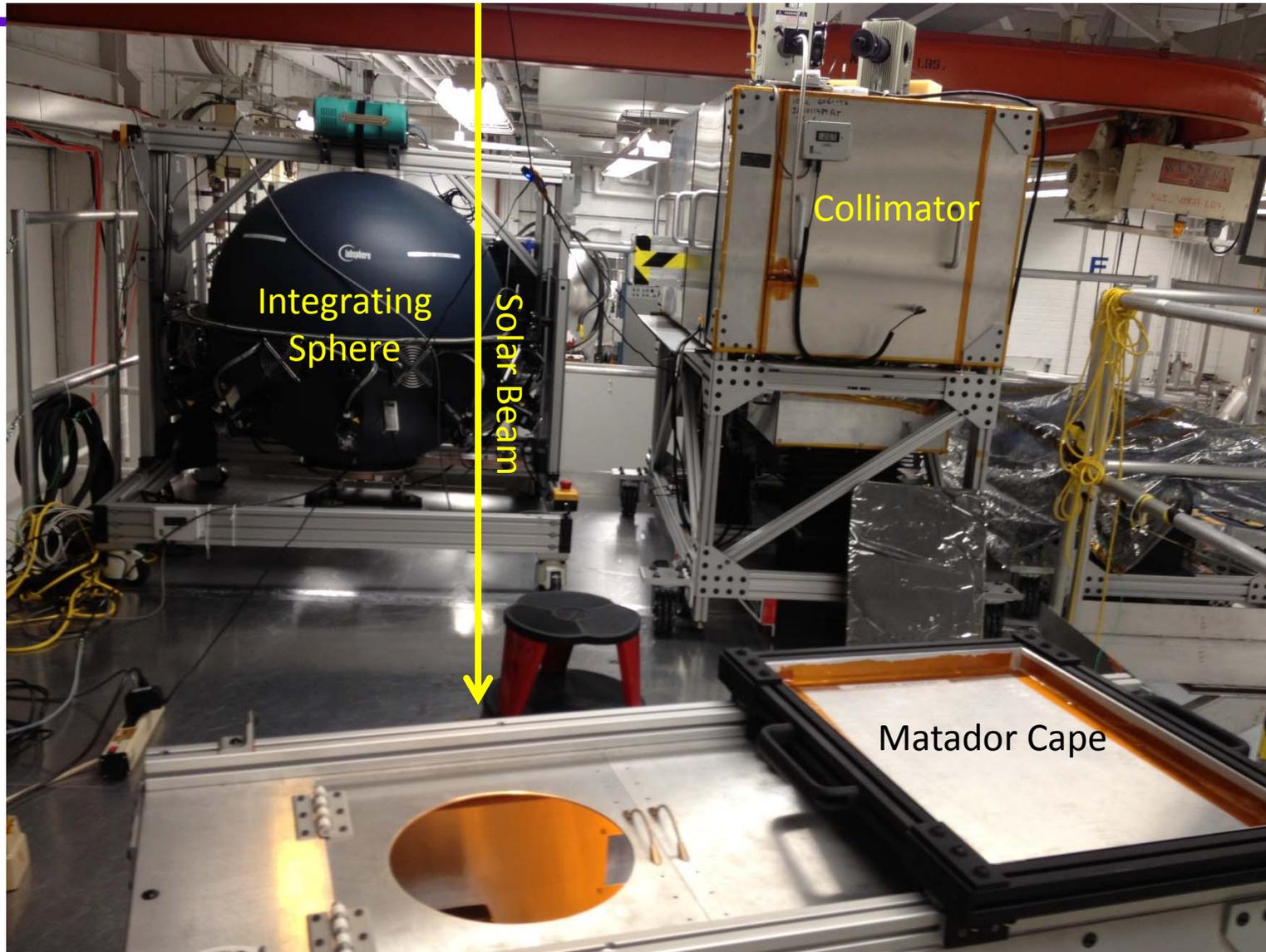


B144 Rooftop Heliostat





GSE Deck with Heliostat M3/M4 “Periscope”





JPL TCCON Station



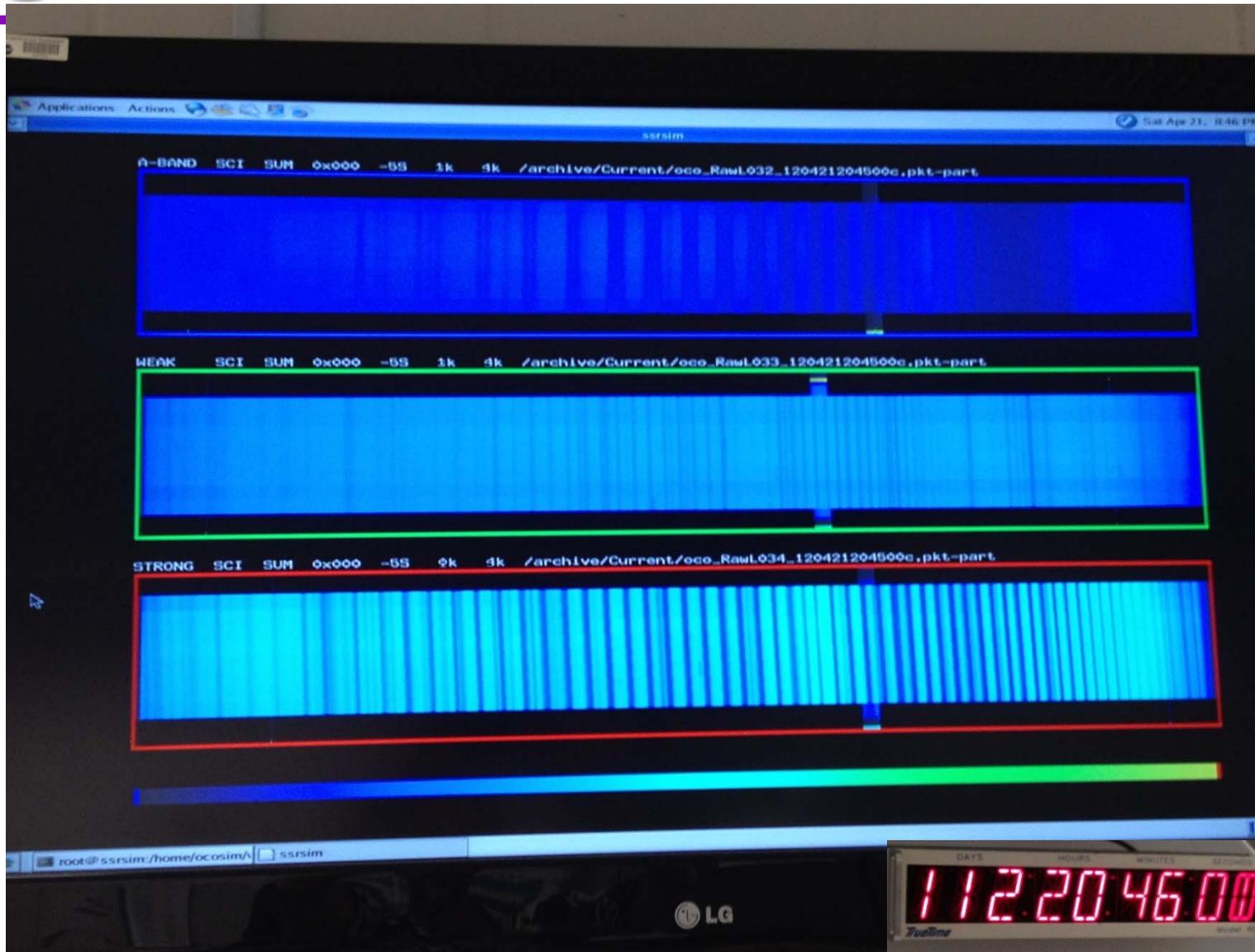


A Nice Clear Day over LA





OCO-2 Heliostat Data Recorded During GOSAT Overpass



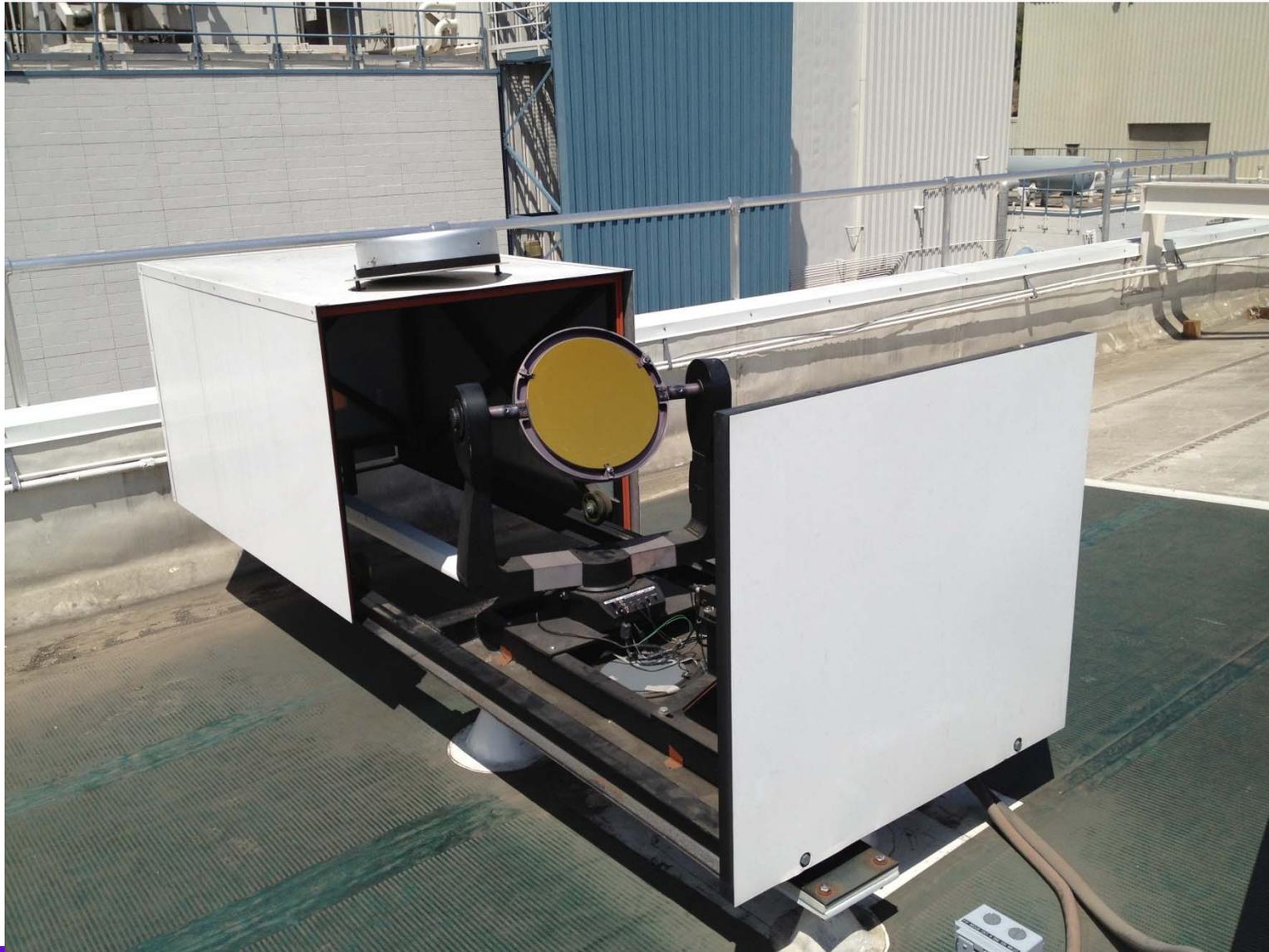
O₂ A-Band

Weak
CO₂ Band

Strong
CO₂ Band



A Last Look at the Heliostat – Just before Shutdown





Ongoing Work

- These GOSAT, OCO-2 and TCCON data are currently being analyzed
 - The GOSAT spectra will be processed as part of the ongoing ACOS/OCO-2 data stream
 - The TCCON data have been processed and will be available from the TCCON group
 - The OCO-2 instrument data will be processed as part of the OCO-2 Instrument calibration effort
- The long-term objective is to compare these results to understand the relative performance of OCO-2 and the GOSAT TANSO-FTS
- Many thanks to:
 - The GOSAT Calibration Team at JAXA, which arranged the GOSAT observations of the LA basin
 - The TCCON team for their collaboration on the OCO-2 Instrument TV effort
 - The OCO-2 instrument Integration and Test and Calibration Teams