Satellite Remote Sensing of Air Quality

Organized by NASA ARSET and the University of California, Riverside
in partnership with the South Coast Air Quality Management District

UCR CE-CERT, 1084 Columbia Avenue, Room 105, Riverside, CA 92507

Key = **LC**: Lecture, **HO**: Hands-On Exercise, **DM**: Demonstration, **PP:** Participant Presentation, **DS**: Discussion

Tuesday, September 19

Day 1, Morning Session: Introduction and First Exposure to Satellite Air Quality Measurements

	Time	Topic	Format
	08:00 – 08:30	Registration and Logistics	Informal
D1P1	08:30 – 09:30	Current and Future Satellite Capabilities for Air Quality Monitoring: An Overview	LC, DS
D1P2 D1P2E	09:30 – 10:15	Satellite Imagery Access, Interpretation, and Tools for Dust, Smoke, & Pollution Monitoring	LC, HO
	10:15 – 10:30	**Break**	
D1P3	10:30 – 11:15	Fundamentals of Remote Sensing	LC, DS
D1P4 D1P4E	11:15 – 12:30	Satellite Based Fire Products: Methods, Data Access, and Applications	LC, DS, HO
	12:30 – 1:30	**Lunch Break**	

Day 1, Afternoon Session: Satellite-Based Emission Datasets

	Time	Topic	Format
D1P5	01:30 – 02:00	Smoke Monitoring from Space	LC
D1P6 D1P6E	02:00 – 03:00	Aerosol Observations from Satellites: Brief Theory & Existing Products	LC, DS
	03:00 – 03:15	**Break**	
D1P7, D1P7E	03:15 – 04:30	Estimation of Emissions from Satellites: Fires	LS, DS, HO
D1P8 D1P8E	04:30 - 05:00	Remote Sensing of Trace Gases	LC, DS
	5:00 – 5:30	Q&A and Review Day One	
	5:30	**Adjourn**	

Wednesday, September 20

Day 2, Morning Session: Satellite Data, Tools, and Applications

	Time	Topic	Format
	08:30–09:00	Q&A, Review of Day 1, Logistics	
D2P1	09:00–09:30	Validation and Evaluation of Satellite-Derived AOD	LC
D2P2	09:30–10:30	Theoretical Basis for Converting Satellite Observations to Ground-Level $PM_{2.5}$ Concentrations	LC, DS

	10:30 – 10:45	**Break**	
D2P3 D2P3E	10:45 - 12:30	Conversion of Satellite Aerosol Measurements to $PM_{2.5}$ Air Quality	LC, DS, HO, DM
	12:30 – 01:30	**Lunch** Break	

Day 2, Afternoon Session: Estimation of Ground Level $PM_{2.5}$ Concentrations with Satellite Data

	Time	**Topic**	**Format**
D2P4 D2P4E	01:30 – 02:30	Reading and Mapping MODIS Level 2 Aerosol & $PM_{2.5}$ Datasets	HO
	02:30 – 04:00	Freedman HAQAST project	LC, DS
	4:00 – 4:15	**Break**	
D2P5	04:15 – 05:00	Overview of CALIPSO and CATS	LC, DS
	05:00 - 05:30	Discussion, Q&A and review of day 1	
	5:30	**Adjourn**	

Thursday, September 21

Day 3, Morning Session: Satellite Based Fire and Emissions Products

	Time	**Topic**	**Format**
	08:30 – 09:30	Q&A, review of day 2, logistics	
D3P1	09:30 – 10:30	Estimation of Emissions From Satellites: Trace Gases	LC, DS
	10:30 – 10:45	**Break**	
D3P2 D3P2E	10:45 – 12:00	MERRA-2 Reanalysis	LC, DS, HO
D3P3 D3P3E	12:00 – 12:30	Additional Tools and Resources for Case Studies	LC, DM
	12:30 – 2:00	**Lunch Break**	

Day 3, Afternoon Session: Trace Gas Products

Time	**Topic**	**Format**
02:00 – 04:00	Case Study Analysis in Groups	HO
04:00 – 04:15	**Break**	
04:15 – 05:15	Case Study Presentations and Discussion	PP, DS
05:15 – 05:30	Training review, feedback, and moving forward	DS
05:30	**Adjourn**	