

Monday, July 8 – Radiative Transfer

- 7:45 am – Buses depart from Hilton
- 8:00 – 8:45 – Breakfast at CIRA
- 8:45 – 9:00 – Welcome, Safety Briefing, Introductions
- 9:00 – 11:00 – Sat Orbits & Instruments, Planck radiance, BTs in mixels, refl solar & thermal emiss, 4 vs 11 um– Lecture, Paul Menzel
- 11:00 – 11:15 – Break
- 11:15 – 12:00 – Intro to HYDRA, refl solar & earth emission – Lab, Menzel
- 12:00 – 1:00 – Lunch
- 1:00 – 3:00 – RTE, land-ocean-atm spectral signatures – Lecture, Menzel
- 3:00 – 3:15 – Break
- 3:15 – 4:00 – ABI spectral bands – Lab, Menzel
- 4:00 – 5:00 – Student Presentations
 - 4:00 – 4:15 – Kelcy Brunner
 - 4:15 – 4:30 – Hyunglok Kim
 - 4:30 – 4:45 – Christopher Hartman
 - 4:45 – 5:00 – Kristan Morgan

Tuesday, July 9 – Radiative Transfer

- 8:15 am – Buses depart from Hilton
- 8:30 – 9:00 – Breakfast at CIRA
- 9:00 – 11:00 – Review, Hyperspectral IR – Lecture, Menzel & Students
- 11:00 – 11:15 – Break
- 11:15 – 12:00 – MW Sounder– Lecture, Menzel
- 12:00 – 1:00 – Lunch
- 1:00 – 3:00 – VIIRS, CrIS & ATMS estimates of TPW – Lab, Menzel
- 3:00 – 3:15 – Break
- 3:15 – 4:00 – Review – Lecture, Menzel & Students
- 4:00 – 5:00 – Student Presentations
 - 4:00 – 4:15 – Chuck White
 - 4:15 – 4:30 – Allyson Rugg
 - 4:30 – 4:45 – Joseph Chan
 - 4:45 – 5:00 – Jonathan Smith

Wednesday, July 10 – GOES-R Satellite Series

- 8:15 am – Buses depart from Hilton
- 8:30 – 9:00 – Breakfast at CIRA
- 9:00 – 10:00 – GOES-R Intro – Pam Sullivan
- 10:15 – 11:00 – ABI Intro and time for questions – Tim Schmit

11:00 – 11:15 – Break
11:15 – 12:00 – ABI Hands-on Exercises – Tim Schmit
12:00 – 1:00 – Lunch
1:00 – 2:00 – Reading/Manipulating ABI data with Exercises – Kyle Hilburn and Dan Lindsey
2:00 – 3:00 – GLM Intro – Steve Goodman
3:00 – 3:15 – Break
3:15 – 4:00 – GLM Hands-on Exercises – Steve Goodman
4:00 – 5:00 – Student Presentations
 4:00 – 4:15 – Diego Salazar Martinez
 4:15 – 4:30 – Shanice Whitehall
 4:30 – 4:45 – Martin Rugna
 4:45 – 5:00 – Paula Hobouchian

Thursday, July 11 – JPSS Satellite Series

7:15 am – Buses depart from Hilton
7:30 – 8:00 – Breakfast at CIRA
8:00 – 8:05 – Introduction – Jorel Torres
8:05 – 8:30 – JPSS Overview – Greg Mandt
8:30 – 9:00 – JPSS Science Foundation and Project Applications – Mitch Goldberg
9:00 – 10:30 – Microwave Remote Sensing – Sid Boukabara
10:30 – 10:45 – Break
10:45 – 12:00 – IR Remote Sensing – Chris Barnet
12:00 – 1:00 – Lunch
1:00 – 2:00 – VIIRS Day Night Band – Steve Miller
2:00 – 3:00 – Fire & Smoke and Land Applications – Ivan Csiszar
3:00 – 3:30 – Break
3:30 – 4:30 – Tropical Cyclone Applications – Josh Cossuth
4:30 – 5:00 – Open Discussion – Mitch Goldberg
5:00 – 5:10 – Educational Resources – Jorel Torres

Friday, July 12 – NASA Satellites (aka, “Chris Day”)

8:15 am – Buses depart from Hilton
8:30 – 9:00 – Breakfast at CIRA
9:00 – 10:30 – Precipitation Measurement Missions – Chris Kummerow
10:30 – 10:45 – Break
10:45 – 12:00 – Carbon Measurement Missions – Chris O’Dell
12:00 – 1:00 – Lunch

1:00 – 2:30 – Evapotranspiration, Artificial Intelligence and Big Data – Chris Hain
2:30 – 2:45 – Break
2:45 – 4:00 – Aerosol Remote Sensing -- Application to Wildfire Smoke, Volcanic Plumes, Desert Dust, and Pollution Particles – Ralph Kahn

Monday, July 15 – EUMETSAT

8:15 am – Buses depart from Hilton
8:30 – 9:00 – Breakfast at CIRA
9:00 – 10:30 – Explain an RGB – Mark Higgins
10:30 – 10:45 – Break
10:45 – 12:00 – Phases of convection and the microphysics RGBs – Mark Higgins
12:00 – 1:00 – Lunch
1:00 – 2:30 – What makes for "Useful Products" – Mark Higgins
2:30 – 2:45 – Break
2:45 – 4:00 – Future EUMETSAT programmes – Mark Higgins
4:00 – 5:00 – Student Presentations
4:00 – 4:15 – Ines Simone
4:15 – 4:30 – Amanda Rehbein
4:30 – 4:45 – Miguel Perpina
4:45 – 5:00 – Anna del Moral

Tuesday, July 16 – NWP and Satellite Data Assimilation

8:15 am – Buses depart from Hilton
8:30 – 9:00 – Breakfast at CIRA
9:00 – 9:45 – The challenge of R2O and O2R in Transferring NWP Research Activities into Operations – Sid Boukabara
9:45 – 10:30 – The Emerging use of Artificial Intelligence (AI) into Earth Observation and NWP – Sid Boukabara
10:30 – 10:45 – Break
10:45 – 12:00 – Introduction to Numerical Weather Prediction – Curtis Alexander
12:00 – 1:00 – Lunch
1:00 – 2:00 – Variational Data Assimilation 1 – Steve Fletcher
2:00 – 2:15 – Break
2:15 – 3:15 – Variational Data Assimilation 2 – Steve Fletcher
3:15 – 5:00 – Student Presentations

3:15 – 3:30 – William Agyakwah
3:30 – 3:45 – Lena Heuscher
3:45 – 4:00 – Camila Lopes
4:00 – 4:15 – Hallan Souza
4:15 – 4:30 – Ivan Arias
4:30 – 4:45 – Naufal Razin
4:45 – 5:00 – Chandra Pasillas

Wednesday, July 17 – Field trip to Boulder

(Breakfast on your own)

8:30 am – Bus departs from Hilton to UCAR CG-1 3150
10:00 – 12:00 – COMET – Online Training Resources for Environmental Satellites and Applications – Patrick Dills and Amy Stevermer
12:00 – 1:30 – Walk to Foothills Lab, Lunch at Cafeteria (students pay for themselves), Antenna Viewing, Return to CG
1:30 – 4:00 – Unidata Overview – Tom Yoksas (at CG)

- GOES-R/S data ingest and dissemination
- GOES-R/S data serving
- Unidata supported analysis and display applications: AWIPS, GEMPAK, IDV, McIDAS, MetPy
- GOES-R/S data proximate analysis and display – Jupyter notebooks example use "the cloud"

4:00 – 5:30 - Bus returns to the Hilton

Thursday, July 18 – NWP and Satellite Data Assimilation

8:15 am – Buses depart from Hilton
8:30 – 9:00 – Breakfast at CIRA
9:00 – 10:30 – Ensemble Variational Data Assimilation – Steve Fletcher
10:30 – 10:45 – Break
10:45 – 12:00 – Global Satellite Data Assimilation – John Derber
12:00 – 1:00 – Lunch
1:00 – 2:30 – Regional modeling and Data Assimilation – Steve Weygandt
2:30 – 2:45 – Break
2:45 – 4:00 – Regional modeling and Data Assimilation – Terra Ladwig
4:00 – 5:00 – Tropical Cyclone Data Assimilation – Ting-Chi Wu

Friday, July 19 – NWP and Satellite Data Assimilation

8:15 am – Buses depart from Hilton
8:30 – 9:00 – Breakfast at CIRA
9:00 – 10:30 – Data Assimilation Exercises – Ben Ruston

10:30 – 10:45 – Break

10:45 – 12:00 – Future of Satellite Data Assimilation – Jim Yoe

12:00 – 1:00 – Lunch and Course Surveys

1:00 – Course Dismissal