

# 2019 Boulder Space Weather Summer School: WEEK 1

Time	Mon., 7/08	Tue., 7/09	Wed., 7/10	Thu., 7/11	Fri., 7/12
9:00-9:50	Welcome and Overview <i>(Stan Solomon)</i>	MHD and the Physics of Space Plasmas <i>(Jeff Hughes)</i>	The Solar Atmosphere <i>(Steve Cranmer)</i>	Solar Flares <i>(Adam Kowalski)</i>	Coronal Mass Ejections (CMEs) <i>(Jeff Hughes)</i>
9:50-10:05	Break				
10:05-10:55	Intro to Space Weather Effects & Economic Impacts <i>(Howard Singer)</i>	Numerical Methods for Simulating Space Plasmas <i>(Steve Cranmer)</i>	The Solar Wind & Interplanetary Magnetic Field <i>(Jeff Hughes)</i>	Solar Energetic Particles (SEPs) <i>(Adam Kowalski)</i>	Magnetospheric Structure <i>(Jeff Hughes)</i>
10:55-11:10	Break				
11:10-12:00	Overview of Space Weather Modeling <i>(Jeff Hughes)</i>	Solar Magnetism <i>(Derek Lamb)</i>	Modeling the Solar Wind & IMF with WSA-ENLIL <i>(Sarah McGregor)</i>	Radiation Hazards to Astronauts and Aviation <i>(Rob Steenburgh)</i>	Forecasting Space Weather at SWPC <i>(Rob Steenburgh)</i>
12:00-1:00	Working Lunch – Round Table Discussions				
1:00-1:30	Answers to Questions from Morning Sessions				
1:30-2:30	Lab 1: Intro to Visualization <i>(Nick Gross)</i>	Lab 2: Exploring the Structure of the Solar Magnetic Field <i>(Gross/McGregor)</i> & intro to CCMC	Lab 3: Sources of the Solar Wind <i>(Gross/McGregor)</i>	Lab 4: Exploring the Structure of the Solar Wind <i>(Gross/McGregor)</i>	Lab 5: Predicting the Arrival of CMEs at Earth <i>(Gross/Steenburgh)</i>
2:30-2:45	Break				
2:45-4:30	Modeling Labs Continue				

Reception

SW 101 (Reality)

SW 102 (Harsh Reality)

SW 103 (Virtual Reality)

# 2019 Boulder Space Weather Summer School: WEEK 2

Time	Mon., 7/15	Tue., 7/16	Wed., 7/17	Thu., 7/18	Fri., 7/19
9:00-9:50	<b>Magnetospheric Storms &amp; Substorms</b>  <i>(Jeff Hughes)</i>	<b>Geomagnetically Induced Currents &amp; Effects on Ground-Level Infrastructure</b>  <i>(Jeff Love)</i>	<b>Thermosphere Structure</b>  <i>(Stan Solomon)</i>	<b>Ionospheric Storms</b>  <i>(Delores Knipp)</i>	<b>Capstone Project: Analysis of a Real Space Weather Event</b>
9:50-10:05	Break				
10:05-10:55	<b>Geomagnetism: Measurements &amp; Indices</b>  <i>(Jeff Love)</i>	<b>Radiation Belts: Observations &amp; Impacts</b>  <i>(Howard Singer)</i>	<b>Ionosphere Structure</b>  <i>(Stan Solomon)</i>	<b>Storm Impacts on Navigation &amp; Communication</b>  <i>(Jeff Hughes)</i>	<b>Capstone Project: Analysis of a Real Space Weather Event (continued)</b>
10:55-11:10	Break				
11:10-12:00	<b>Magnetospheric Models</b>  <i>(Kevin Pham)</i>	<b>Radiation Belts: Models</b>  <i>(Scot Elkington)</i>	<b>Magnetosphere-Ionosphere Coupling</b>  <i>(Bill Lotko)</i>	<b>The Aurora</b>  <i>(Stan Solomon)</i>	<b>Capstone Project: Analysis of a Real Space Weather Event (continued)</b>
12:00-1:00	Working Lunch – Round Table Discussions				
1:00-1:30	Answers to Questions from Morning Sessions				
1:30-2:30	<b>Lab 6: Exploring the Magnetosphere</b>  <i>(Nick Gross)</i>	<b>Mini Lab 7: Particle Motions in the Magnetosphere &amp; SWPC Tour</b>	<b>Lab 8: Satellite Drag</b>  <i>(Gross/Knipp)</i>	<b>Lab 9: Exploring the Ionosphere &amp; Thermosphere</b>  <i>(Gross/Solomon)</i>	<b>Wrap-up Session, Student Feedback, and Survey</b>
2:30-2:45	Break				
2:45-4:30	Modeling Labs Continue				

Dinner

SW 101 (Reality)

SW 102 (Harsh Reality)

SW 103 (Virtual Reality)