

Heliophysics Summer School: Year 2

Space storms and radiation: causes and effects

2	Overview	From extra-planetary to planetary energy conversion processes				Energetic particle detection	Particle effects
	Day 1: Wed, July 23	Day 2: Thu, July 24	Day 3: Fri, July 25	Day 4: Sat, July 26	Day 5: Mon, July 28	Day 6: Tue, July 29	Day 7: Wed, July 30
8:30-10:00	Space storms and radiation: The local cosmos as a dynamic and harsh environment	ECP (energy conversion processes) I: buildup to instability then explosive conversion	The varieties of shocks: coronal, CME, CIR, heliospheric, and planetary	Energetic particle transport : solar, anomalous, and galactic	Application of ECP I: magnetic (sub-)storms, and planetary counterparts	Energetic particles and their detection in situ (Particle detectors)	Particle effects on humans and biological tissues
10:30-12:00	Space weather forecasting Chris Balch	Shock arrival time lab Masha Kuznetsova	Results of SAT lab George Siscoe	Question and answers	Magnetopause position lab George Siscoe	Polar-cap size lab George Siscoe	Dosage, charging, tissue damage and repair Neal Zapp
1:30- 3:00	Observations of solar and stellar eruptions, flares, and jets	EM flare radiation and atmospheric response: ITM & chromosphere	ECP II: shock acceleration	Waves in planetary and stellar atmospheres	ECP III: energization of trapped particles in planetary radiation belts.	Energetic particle detection remotely (gamma rays to radio emissions)	Particle interaction with technology
3:30- 5:30	Space weather models at CCMC Masha Kuznetsova	Lab: ITM models Tim Fuller-Rowell	Particle acceleration lab I: shock acceleration Dietmar Krauss-Varban	Time Off	Results of magnetopause-position lab George Siscoe	Results of polar-cap size lab George Siscoe	Questions and answers + Discussion and evaluation

Morning teachers:	Sten Odenwald	Terry Forbes	Merav Opher	Joe Giacalone	Vytenis Vasyliunas	George Gloeckler	Neal Zapp
Afternoon teachers:	Hugh Hudson	Tim Fuller-Rowell	Dietmar Krauss-Varban	Richard Walterscheid	Janet Green	Tim Bastian	Alan Tribble