

Spacecraft Working Group Report

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SuperDARN Workshop 2015

Working Group Membership



- Kevin Sterne (VT) leads on Van Allen probe conjunctions, new-moon THEMIS mode requests
- Tomo Hori new member to advise on ERG operations
- Rob Fear updating conjunction code to include MMS amongst others

Van Allen Probe Support

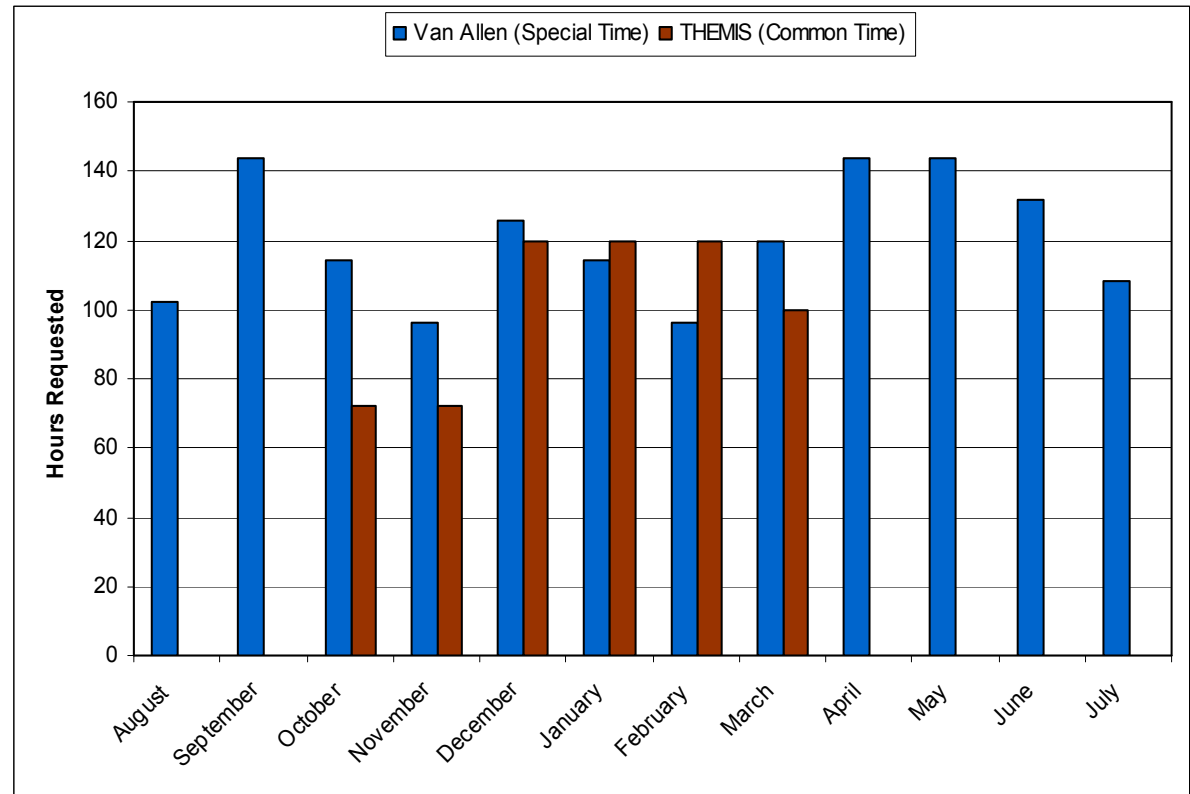


- Van Allen probes (RBSP) are main factor in selected conjunctions
- ‘Triggered’ mode (CT-TRIG for storm times)
 - Automatically triggered when $DST < -50$ nT; ends when $DST > -30$ nT
 - Overrides any other scheduled Common Time mode (e.g. normalscan)
- ‘Apogee’ mode (ST-APOG) for general studies
 - Scheduled for good conjunctions between Van Allen and SuperDARN
 - Counts as Special Time mode
 - Subject to Special Time cap (6 days/month)
- Footprint plots are publicly available – help yourself!
www.southampton.ac.uk/~rcf2c13/VAP/

Hours Schedule 2014-5



- Return of THEMIS for North America new moon
- Van Allen probe (ST-APOG)



- Variable due to request for long discretionary periods and other special requests (eclipse, F-region conductance)

- Focus on reconnection (particles, fields, etc.)
- Uses a 4-satellite pyramid configuration
- Phase 1: apogee of $12 R_e$, ~ 24 h orbit
 - Late Sept to early Feb. '16: magnetopause crossing
 - early May to early Aug. '16: Tail season
 - late Oct. to mid May '17: second magnetopause (apogee rising, orbit period near 3 days at end of this period)
- Phase 2: apogee of $\sim 24 R_e$, ~ 3 day period

MMS – Example Footpoint plot

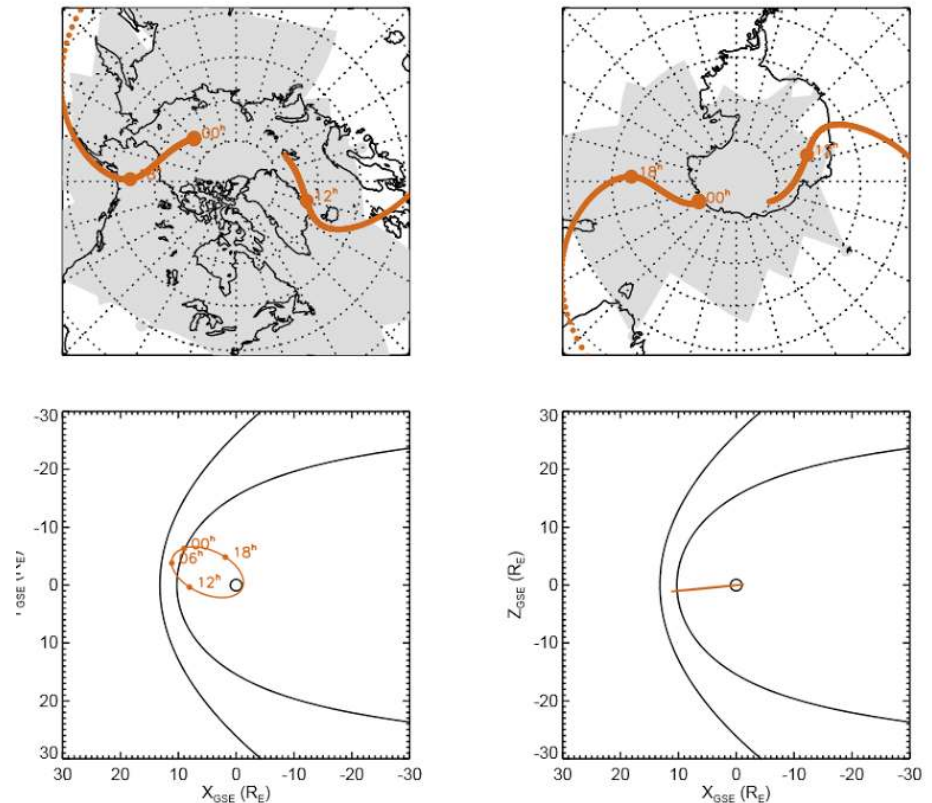
- MP crossings:

- Schedule 12h periods of standard mode (too long and frequent for special time), normalscan
- High-res for some cusp encounters (THEMIS)

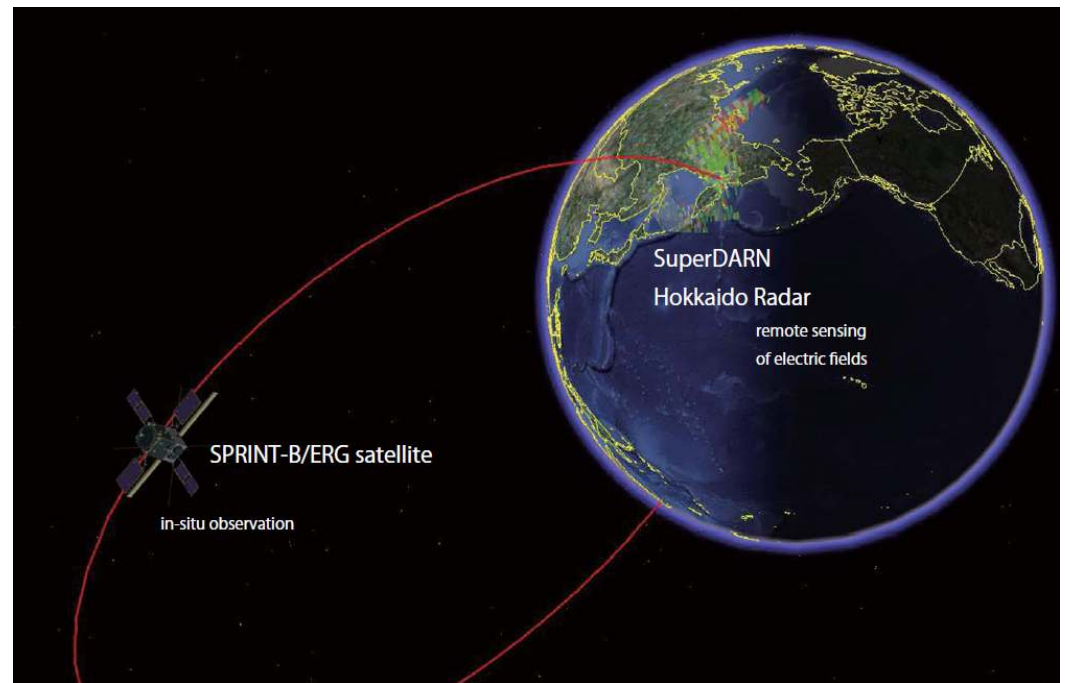
- Tail season: Schedule 12h periods of...

28-Dec-2015

NB Not final - Plots based on SSCWeb position data at 14th May 2015

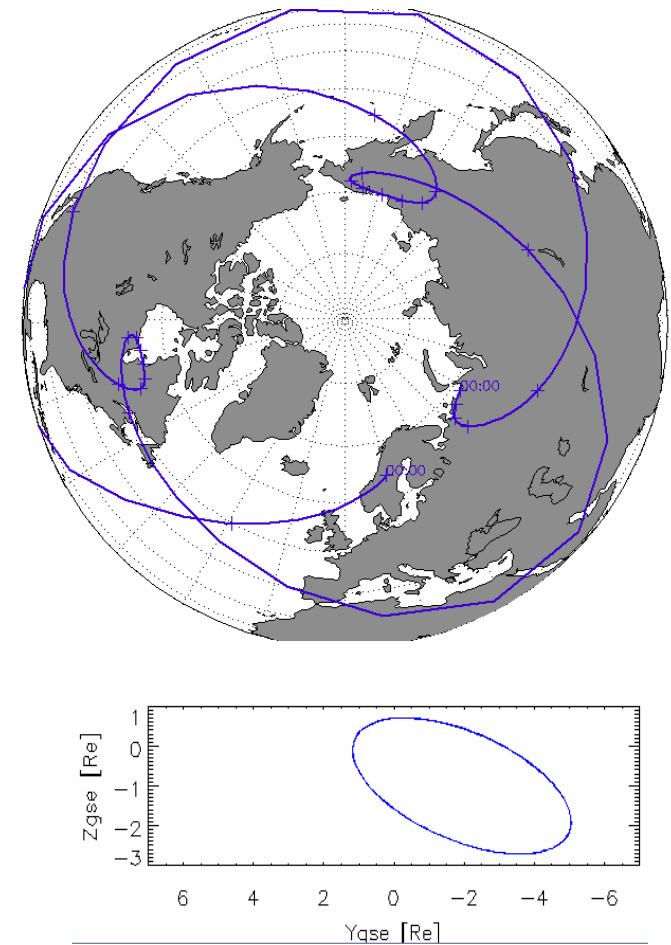
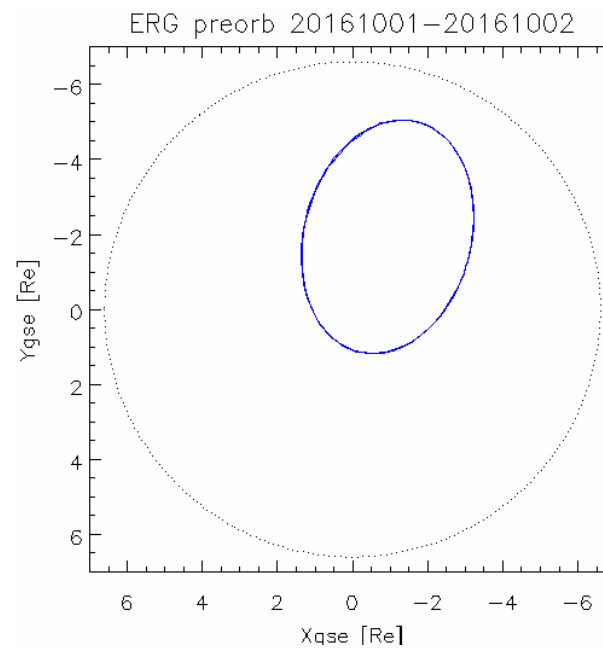


- Primary target: radiation belt, ring current
- Single satellite, 300 km x 5.5 R_e , incl. $\sim 30^\circ$
- Instrument:
Electron, ion(mass separation),
E/B-field, wave,
wave-particle correlator



ERG orbit and footprint

- Typical 1 day orbit & footprint
- Japanese team has been discussing the campaign observations and observation modes to optimize the collaboration between SD and ERG



- Continued support of Van Allen probe (CT-TRIG and ST-APOG)
 - Welcome input for better trigger for CT-TRIG
- MMS: develop mode, scheduling
- ePOP: develop mode, scheduling
- ERG support (launch summer 2016)
- Ground-based coordinations?

- A page is maintained on VT website for the ScWG (under 'SD Working Groups')
- Includes summary info for each satellite mission and useful links (Rob's footpoint plots)
- Includes a link to an Audit of work that has used data collected in special (high-res) modes **(everyone please update!)**