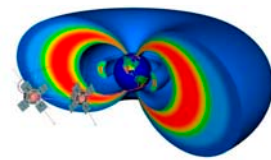




# Preliminary list of data-use scenarios

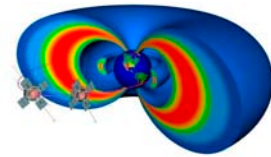
## [Details on follow-on slides](#)



1. How do members of an instrument team look at, access, and analyze their own data?
2. Outside Researcher / Student wishing to access RBSP data
3. Survey RBSP data (both “insider” and “outsider” access)
4. Targeted access (insider and outsider access)
5. Access to large volumes of data (insider and outsider access)
6. Space Weather Event (insider and outsider access)
7. Question: What other scenarios should we consider?



# Scenario #1

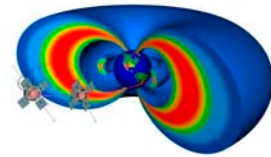


How do members of an instrument team look access and analyze their own data?

- We presume that this scenario is covered by each instrument team's "baseline science operations plan"



## Scenario #2

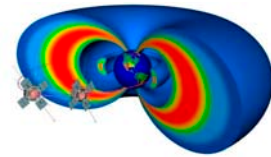


Outside Researcher / Student wishing to find out about RBSP data and whether it would be useful for his or her study.

- Probably has no idea where to begin search.
- May only want the simplest of survey plots or tools- just to know something is there.
- Wants to know time periods when data is available.
- Needs brief description of mission, instruments and modes
- May want to know about orbits, conjunctions, and where the spacecraft are at particular times.
- Question: Do plots from individual instruments suffice?
- Question: Standard survey period suffices (day?, orbit?) or is flexibility needed?
- Question: What other flexibility is needed?



## Scenario #3

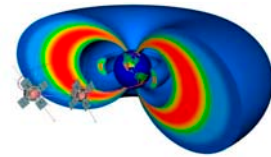


Survey RBSP data (both “insider” and “outsider” access)

- Go through hundreds of plots whose parameters the user sets.
- Would like parameters from multiple instruments.
- Possibly would like to plot with data from ACE or other available data.
- Need flexibility on time scales: one hour, one day, or one orbit per page
- Set all the Y axes the same and choose the same fixed color bar.
- Need easy access to orbit plots to see where the spacecraft were at times of each event.
- Result may be a detailed list of events that I find.
- Question: Other characteristics of this scenario?



## Scenario #4

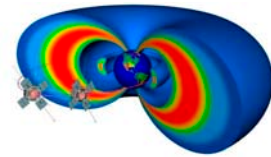


### Targeted access (insider and outsider access)

- Possibly running a campaign with certain time periods or spatial regions of interest
- Need to know about conjugacy. For example, map of Earth with spacecraft footprints. Possible conjugacy with other spacecraft (proximity)
- Plot data versus time, and also radial distance, L shell or  $L^*$ , Local Time, etc.
- Mark on the plots information concerning non-RBSP activities (e.g. BARREL)
- Question: Other characteristics of this scenario?



## Scenario #5

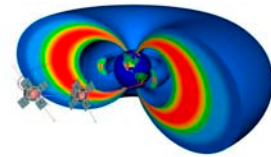


Access to large volumes of data (insider and outsider access)

- Scenario 5a: Detailed case studies using the highest resolution data from multiple instruments
- Scenario 5b: Automated search for and analysis of multiple events over months or years using multiple data sets.
- Need to download “everything” and create large data base(s).
- User may create own higher level parameters and distributions.
- Question: Other characteristics of this scenario?



## Scenario #6



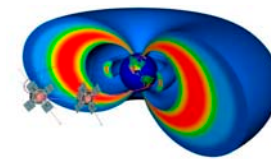
### Space Weather Event (insider and outsider access)

- External organizations call and ask whether we saw anything related to the flare on the sun.
- A geosynchronous spacecraft just died. Need to know NOW whether it was space weather.
- Question: Is this simply a “Space Weather Broadcast” issue (answered by quick examination of the latest downlinked and automatically processed data), or is a more complete / comprehensive analysis needed?



# Sample List of Data Products to be Updated

## This has not been updated from last telecom



### Particles

Electron Intensity versus Energy and time  
Electron Intensity versus Pitch Angle and time  
P, He, O Intensity versus Energy and time  
P, He, O Intensity versus Pitch Angle and time  
P, He, O Intensity versus Gyrophase and time  
Selected E, P, He, O energy spectra  
Selected E, P, He, O pitch angle distributions  
Selected P, He, O gyrophase distributions  
**Electrons:** N, I, P, IE moments  
**P, He, O:** N, V, I, P, IE moments  
HOPE distribution functions  
E, P, He, O PSD versus momentum or energy  
E, P, He, O PSD versus adiabatic invariants  
Meta-Data showing when Instrument Modes are used (a plotable parameter?)

### Waves:

E-Spectra (components) vs. time with critical frequency lines overlaid (gyro; gyro/2; plasma)  
B-Spectra (components) vs. time with critical frequency lines overlaid (gyro; gyro/2; plasma)  
Selected E-spectra (components) at specific times  
Selected B-spectra (components) at specific times  
Wave estimate of Ne  
Meta-Data showing when HTR data is available (a plotable parameter?)

### Magnetic Field

Cartesian / Spherical / GSE / GSM Components  
ULF Wave Spectral Components vrsus time  
Selected ULF Wave Spectral Components

### Electric field

SC Potential and N  
E-vector: 3 components; Cartesian / GSE / GSM  
E-vector: 2 components + 3rd component from  $E \cdot B = 0$   
ULF Wave Spectra Components versus time  
Selected ULF Wave Spectral Components