SWAVES
Status Report

SWG # 21, Dublin, 24/26 March 2010

Instrument status *(from last SWG)*

- Both A & B receivers continue to function nominally
  - No trend changes in HK parameters
  - A few anomalies are tracked with vigor
    - One unexpected/unexplained reset
    - EEPROM error
    - Missing DMA
- Operations continue to go well
  - Commands go up – with routine operations and special sequences
  - Telemetry comes down
  - Associated data products are produced and made available
  - Special situations are handled
    - e.g. S/C resets
  - Flight operations team at APL has been very accommodating
- We have slowly evolved our flight software
  - To improve science
  - To investigate anomalies

SWAVES Team Meeting in December (San Francisco)
- 30 attendees
-~20 presentations (main focus on in-situ, Langmuir Waves)
- Presentations made available @ https://sympa.obspm.fr/wws

SWAVES Team Meeting in Dublin (~12 attendees, 8 presentations)

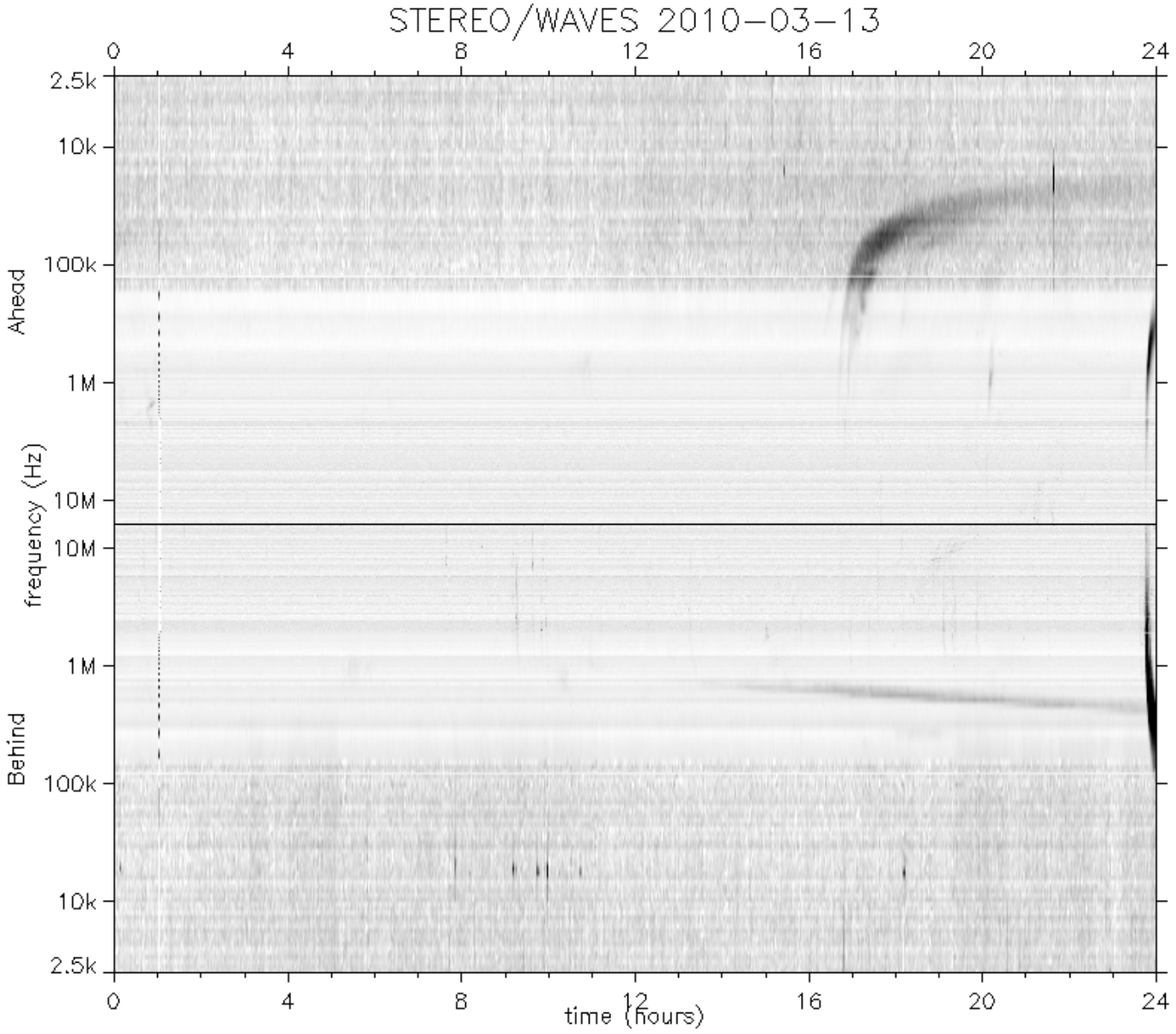
Publications (S/WAVES focussed)

2005 : 3
2007 : 3
2008 : 10
2009 : 12
2010 : 5

Data dissemination

- All the LFR/HFR high res., calibrated data are available @ http://cdpp.cesr.fr/
- Direction Finding being implemented (Cecconi et al. On Friday) will be available soon @ CDPP
- TDS waveform events database in discussion
- S/WAVES data plotting software @ SSC: **swavesplot**
- GSFC website updates
  - improved access to waves data
  - include TDS data
  - etc.

swavesplot.pro available at SSC



Science examples

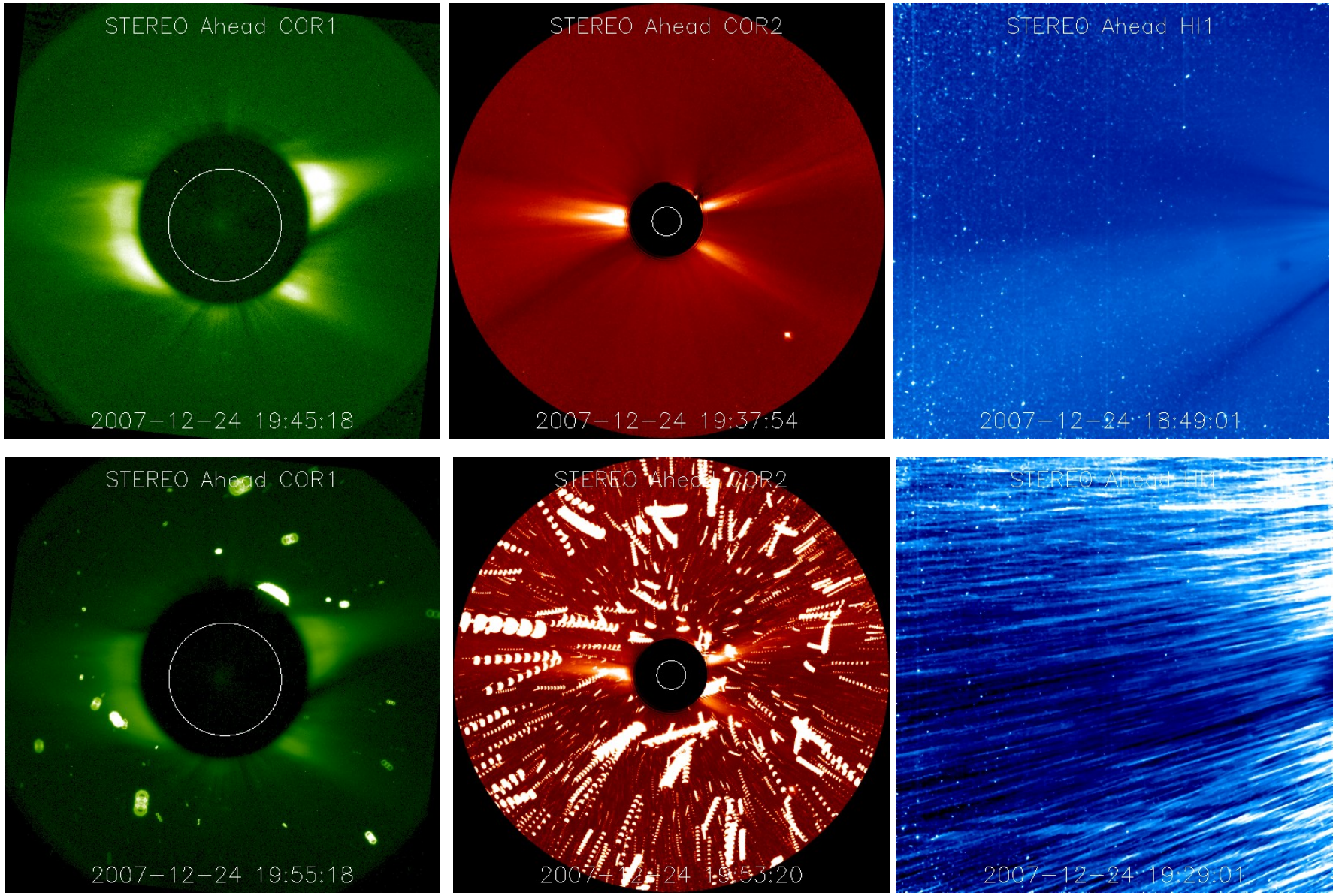
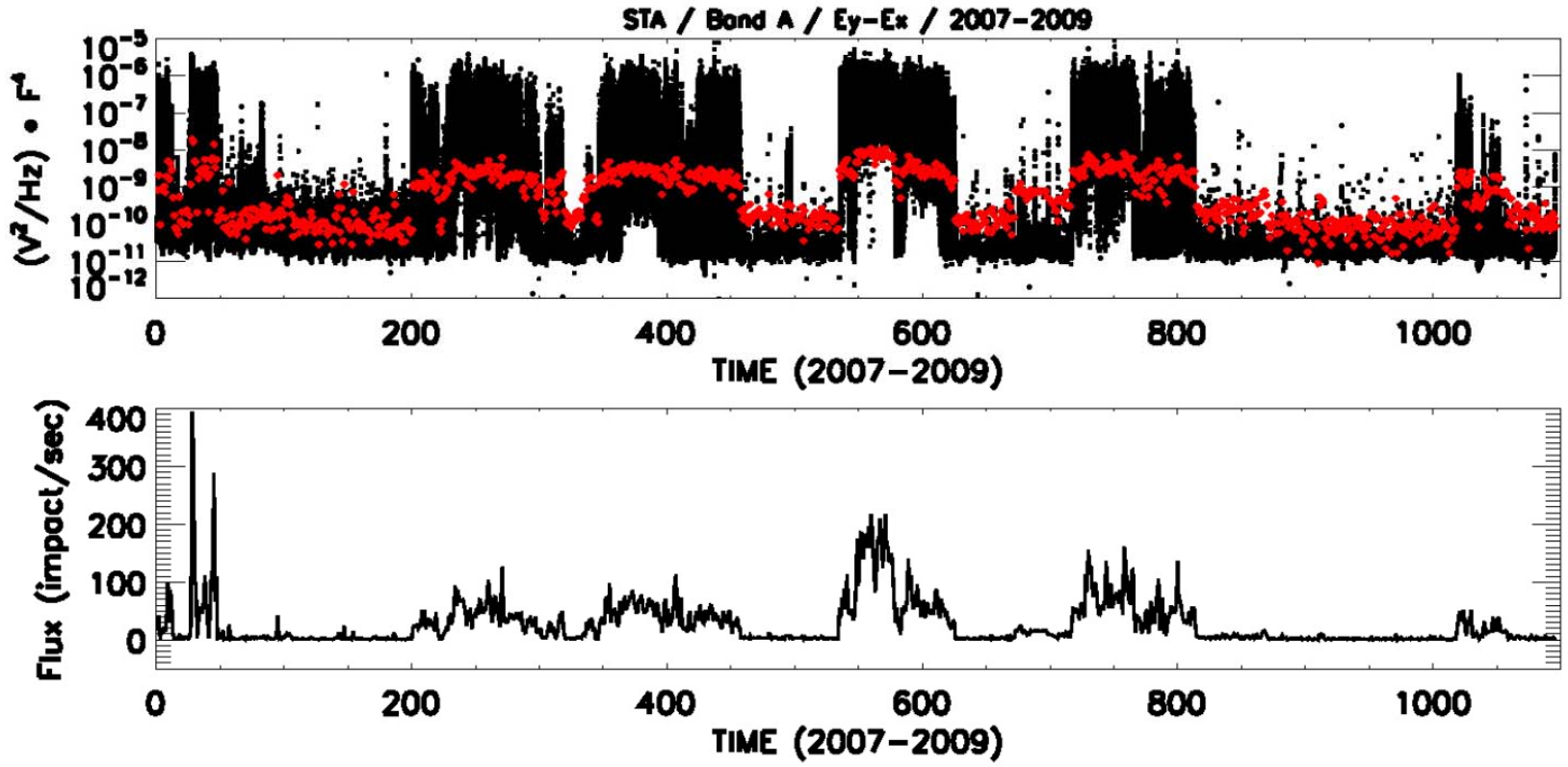


Figure 1: STEREO-A images from COR1, COR2, and HI1 immediately before (top panel) and during (bottom panel) the debris storm on 2007-12-24. Times of each image are shown, and the degradation to the scientific quality is evident.

What's Different (Jan 2007- Dec 2009)?

- Began passage through L4 and L5
- Continue to see debris storms
  - HI1-A
    - Increasing in frequency year-to-year
    - No obvious heliocentric longitude effect
  - HI1-B
    - No change in frequency year-to-year
    - Some hint of longitude effect, but statistics are small
- SWAVES continues to see triple-hits
  - A about 15% more than B, and no obvious longitude effect

Nano Dust Observations
(*presentation by Zaslavsky et al. on Friday*)



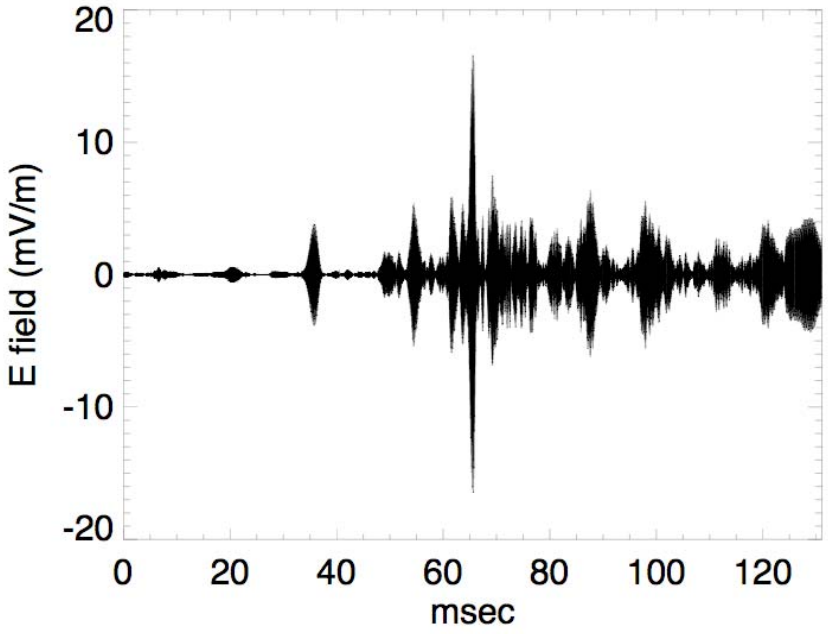
LFR + TDS

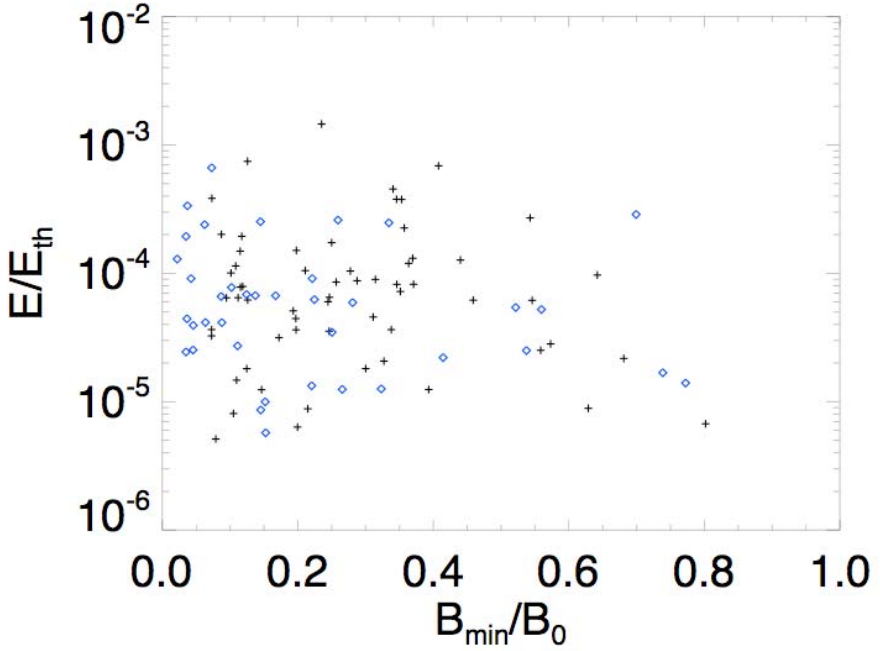
TDS

- Langmuir Electrostatic Decay
- Low energy Langmuir Caviton
- Langmuir waves in magnetic holes

Briand, Soucek, Henri, Mangeney

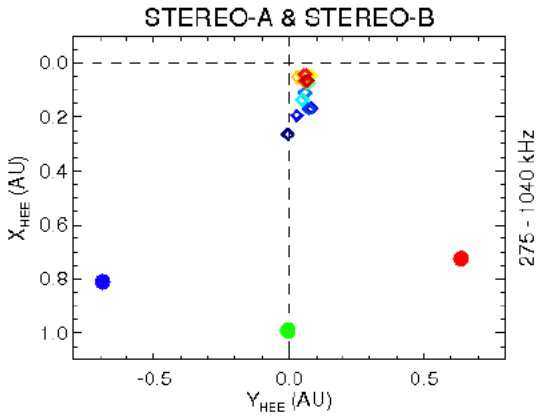
Typical waveform in magnetic hole

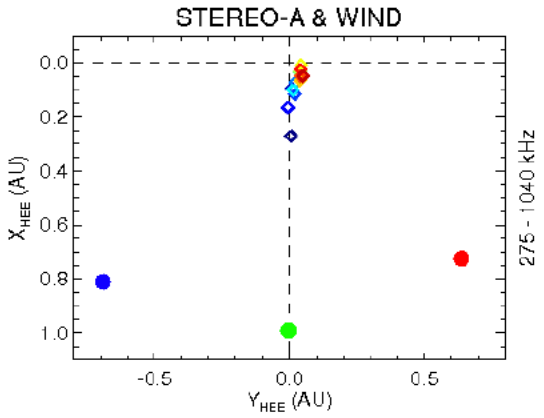


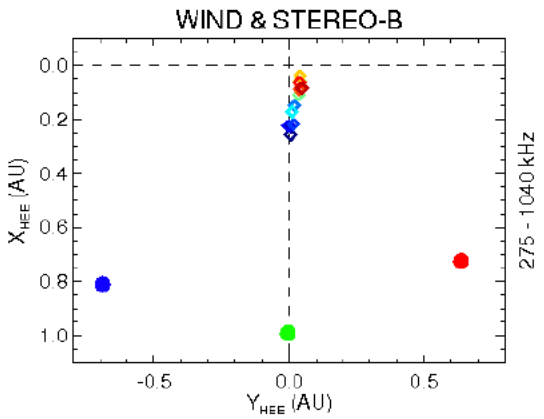


Type III radio bursts observed by STEREO and WIND (2008-11-04)

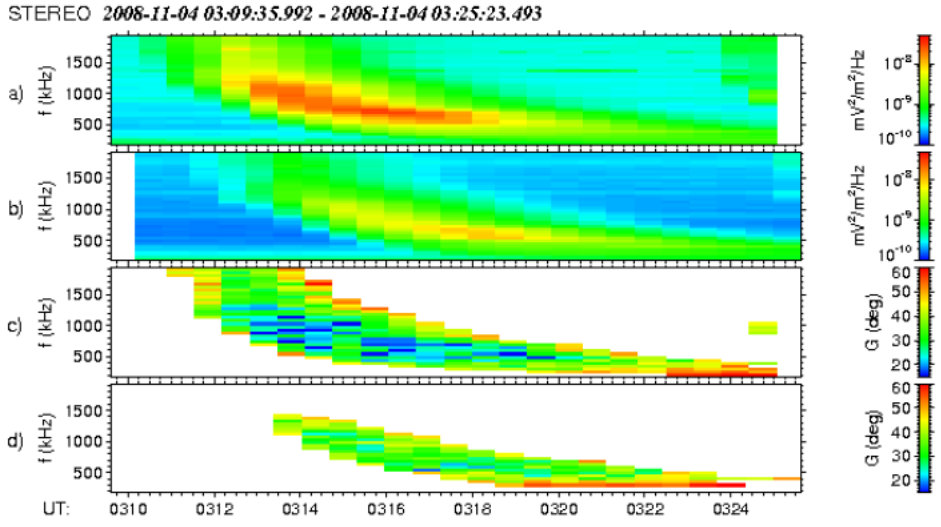
Intersections and spectra from STEREO-A, WIND & STEREO-B





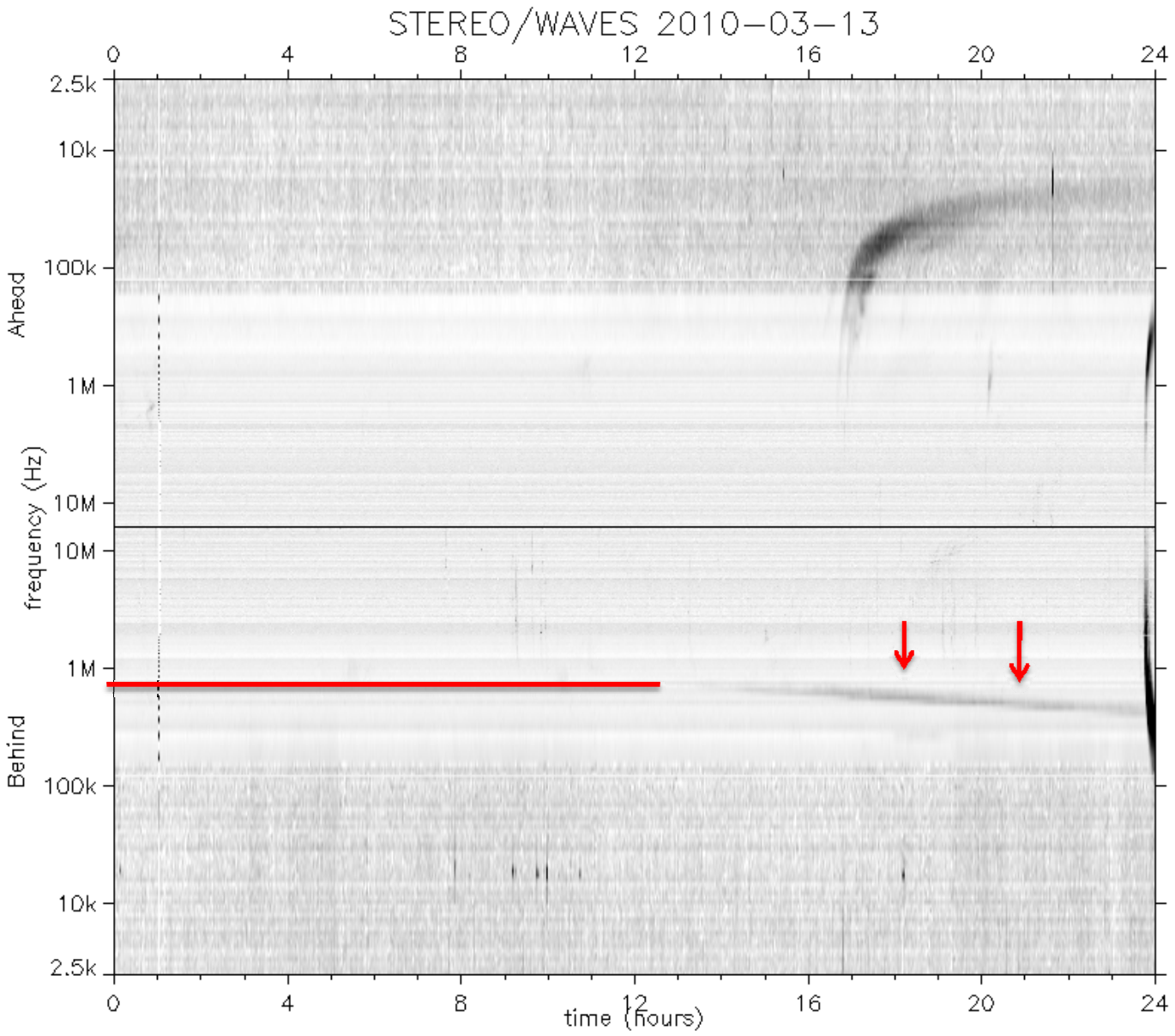


- probably connected with the X flare located on the Sun at longitude +41 westward and latitude +37 northward (NOAA number 11007)



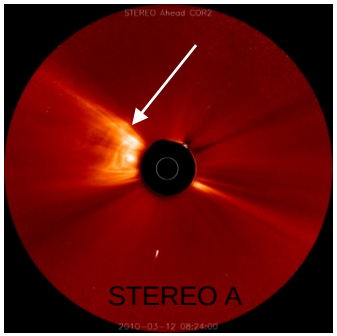
Krupar et al.

swavesplot.pro available at SSC



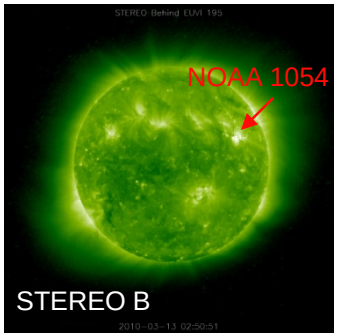
Radio Tracking of IP Mass Ejections? on March 13 - 14, 2010

CME on March 12, 2010

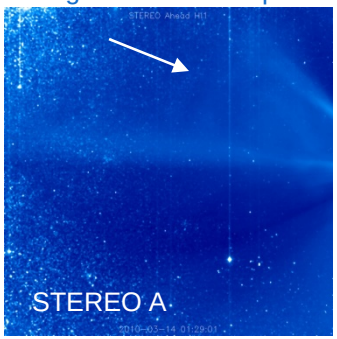


Material continues to "blow out" from the Sun into the next day

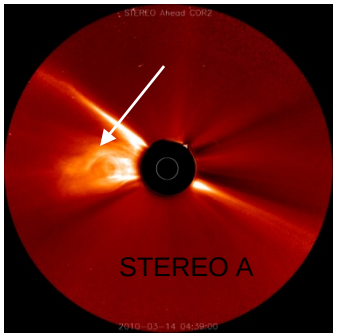
Eruption in NOAA 1054 at 3:00 UT on March 13, 2010

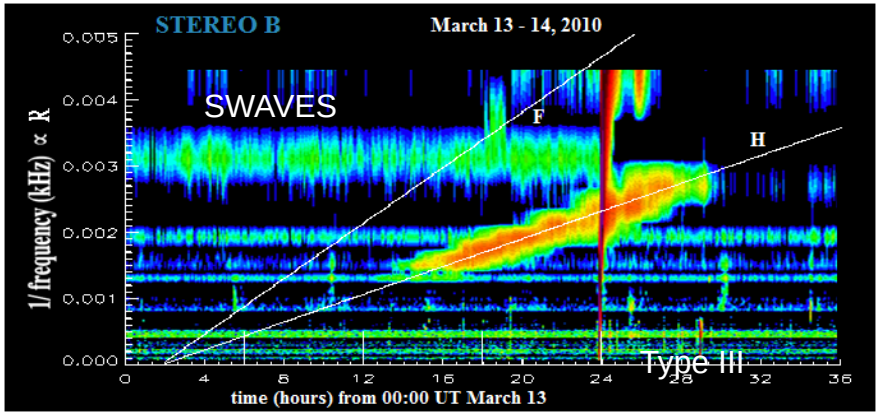


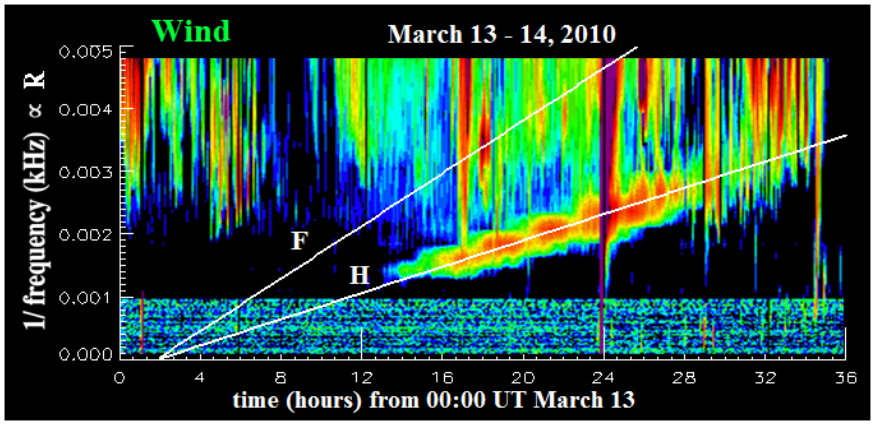
Material is propagating through HI1 during the entire time period



Major CME eruption at the end of March 13







Triangulation at 425 kHz locates the radio source at ~0.37 AU in a region of density 560 cm^{-3}, corresponding to a density at 1 AU of n_0 = 75 cm^{-3}