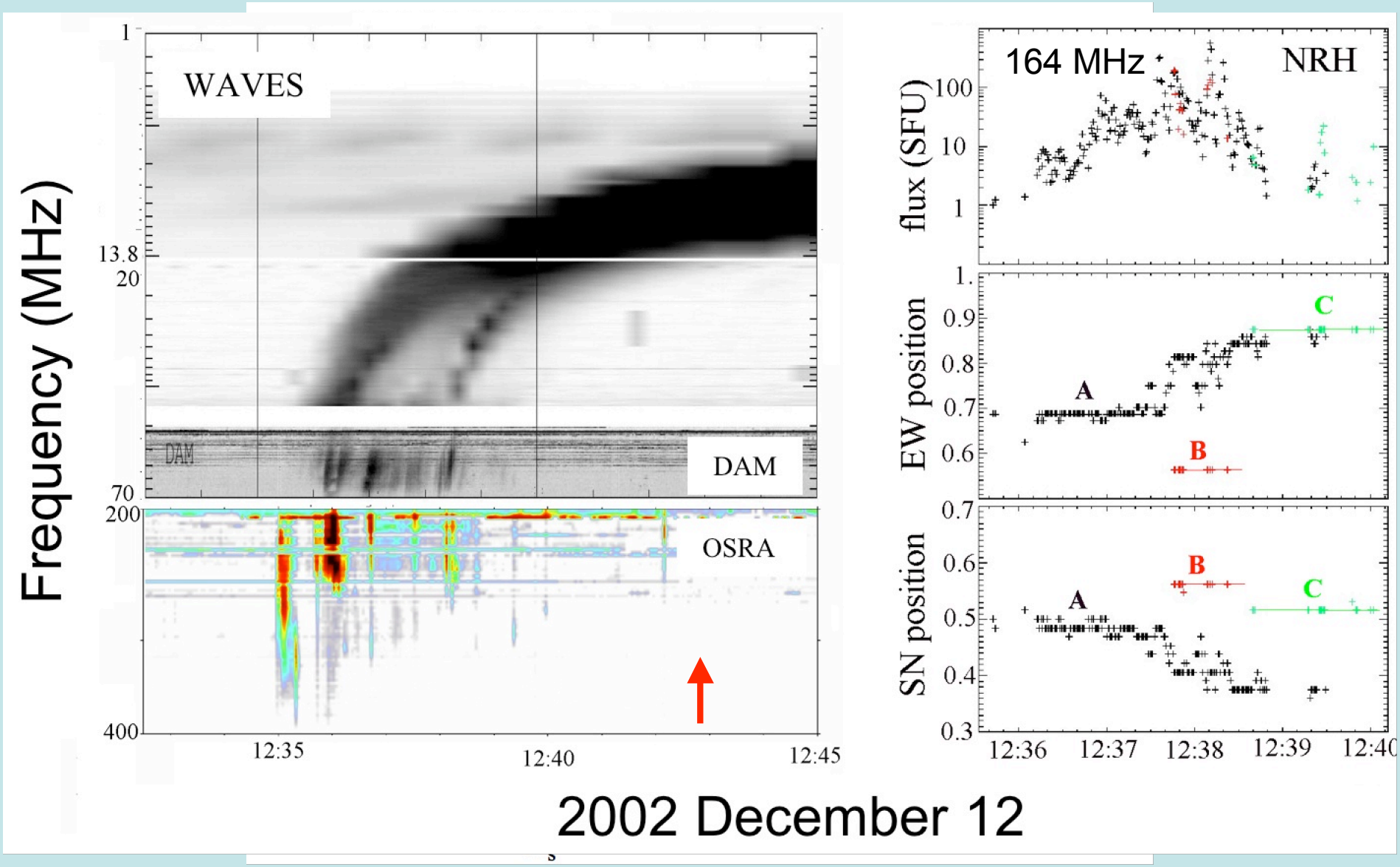
Solar coronal sources of impulsive SEP

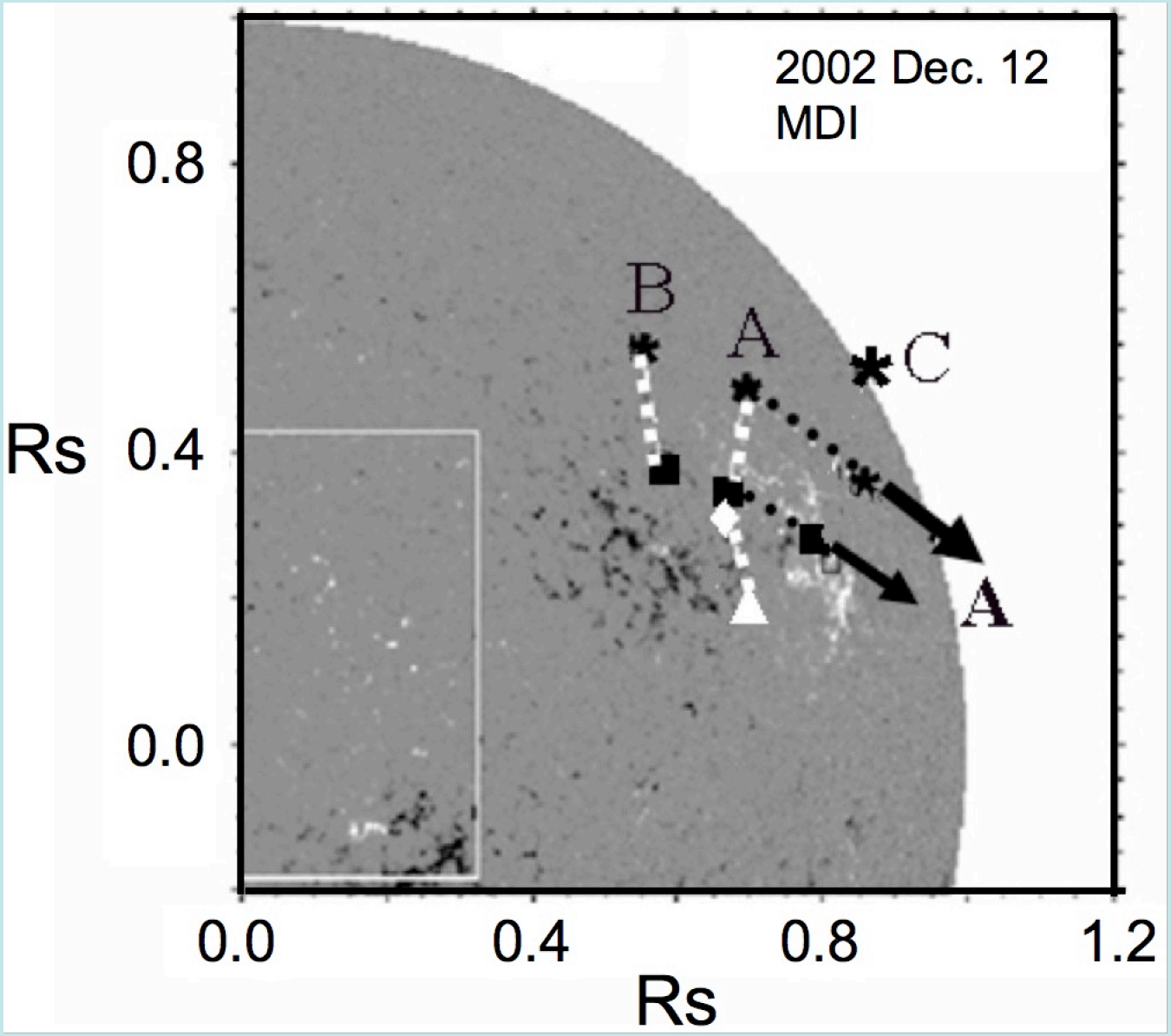
- Nitta et al., 2006 results consistent with Wang, Pick and Mason (2006)
  - Connectivity (window **± 5°,** PFSS model)
  - Source identification (proxies electron event and type III)
  - SEP (delayed events) ;CMEs

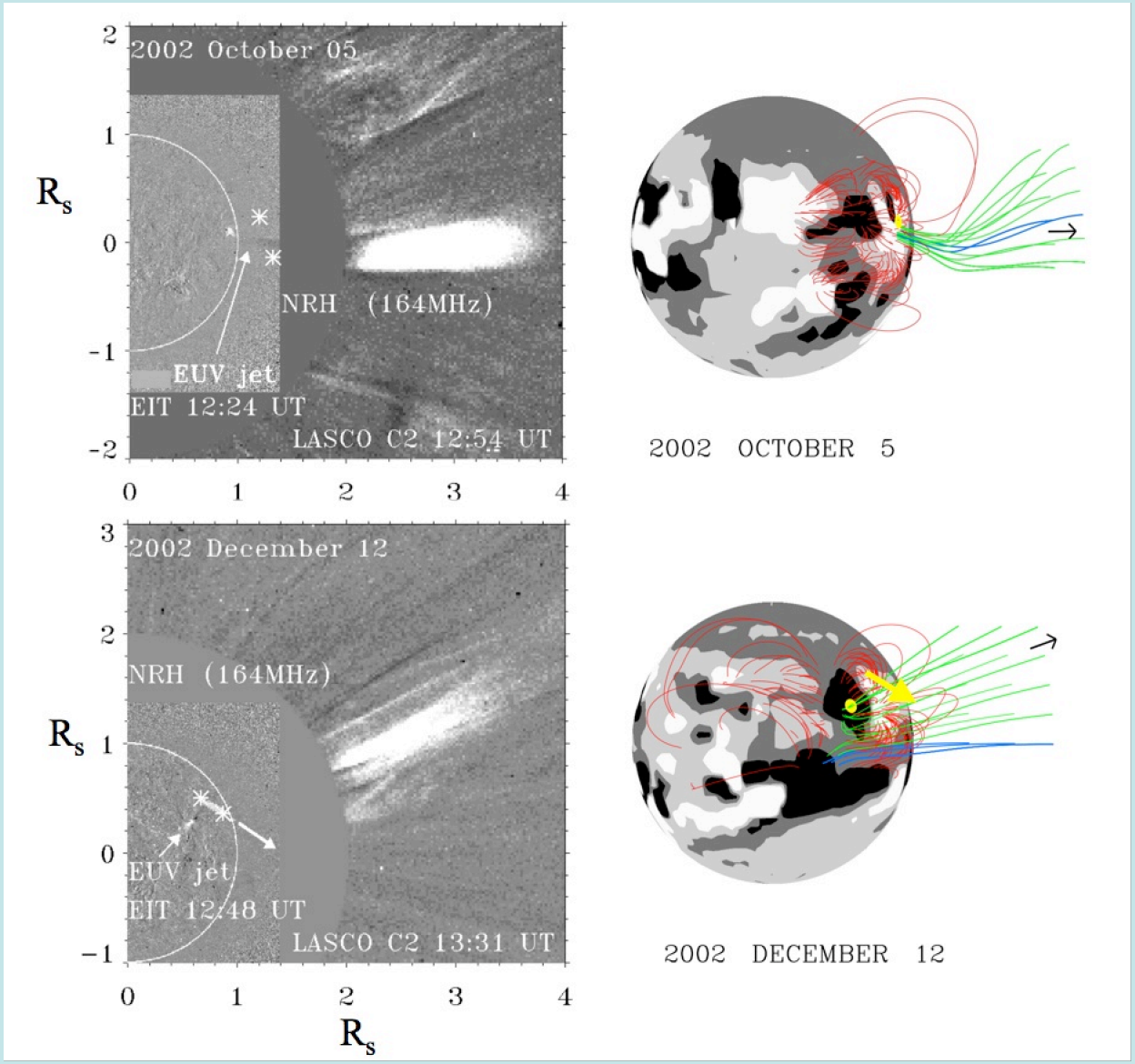
Connectivity



2002 December 12

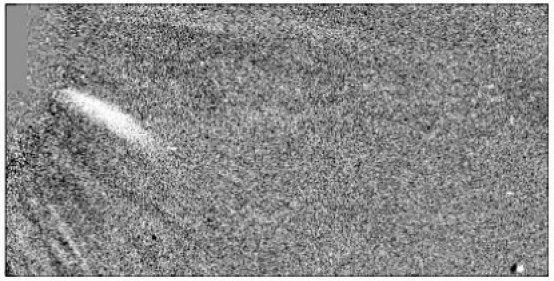
Pick, Mason, Wang Y-M, Tan and Wang, L. , 2006, ApJ

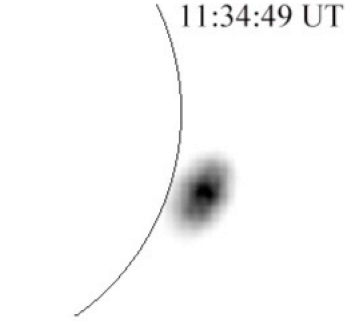

2002 Dec. 12
MDI
B
A
C
A
0.8
0.4
0.0
Rs
0.0
0.4
0.8
1.2
Rs



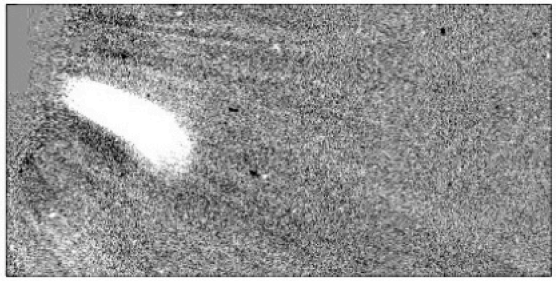
Consistent with SMM results, (Trottet et al., 1982)

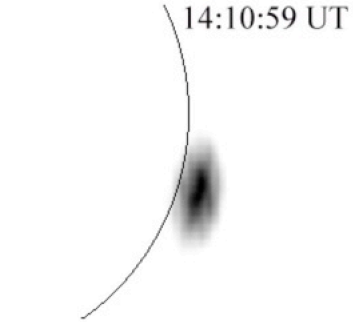
2002 Oct. 20 11:54-11:30



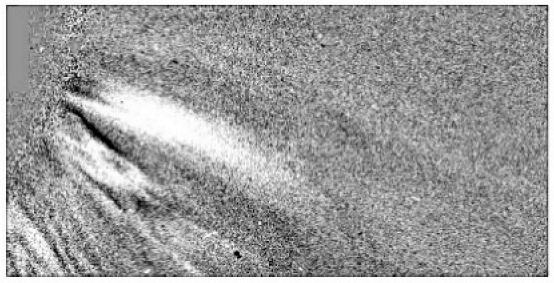


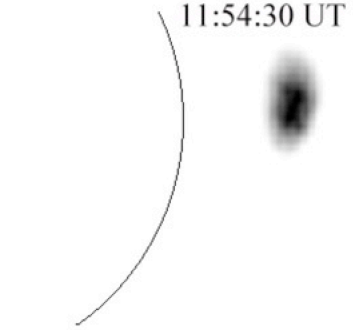
2002 Oct. 20 14:30-14:06

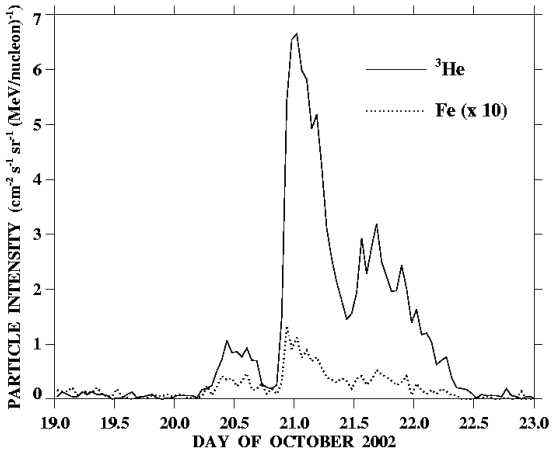




2002 Oct. 21 12:30-12:06



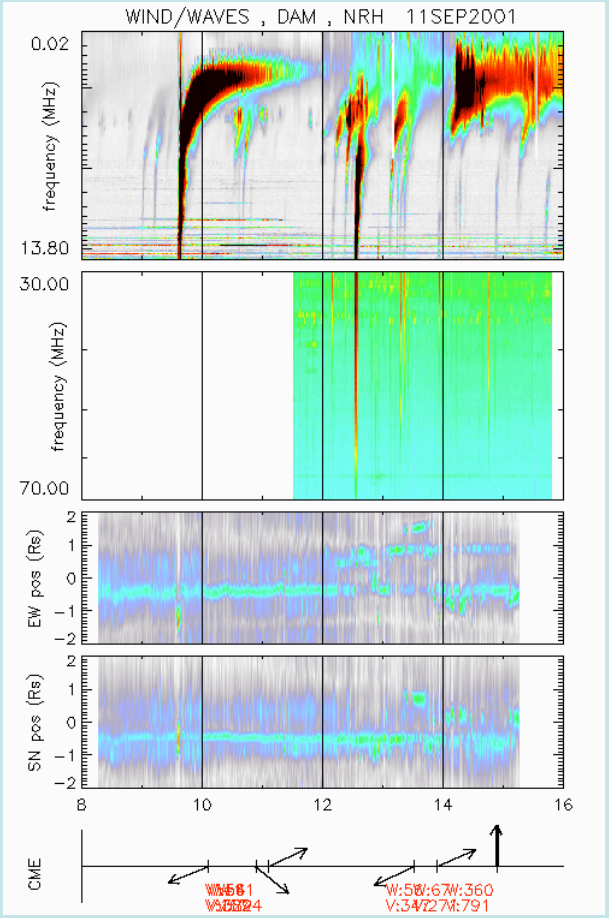




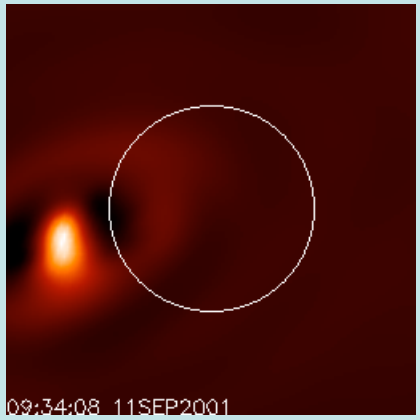
Source identification

2001 Sep. 11, N27 W90 09:35 UT (Nitta et al., 2006)

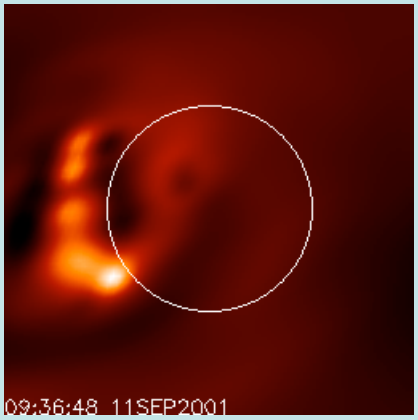
(1) (2)



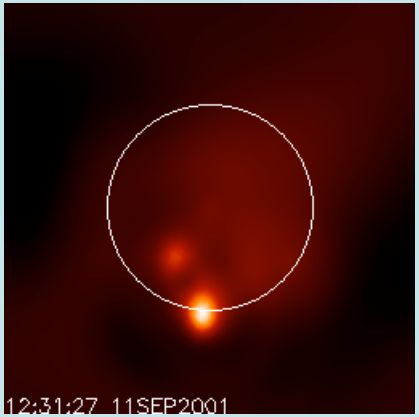
(1)



09:34:08 UT

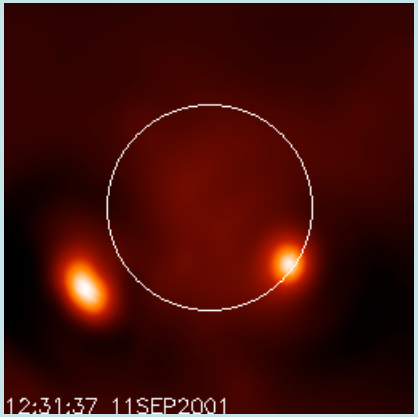


09:36:48 UT



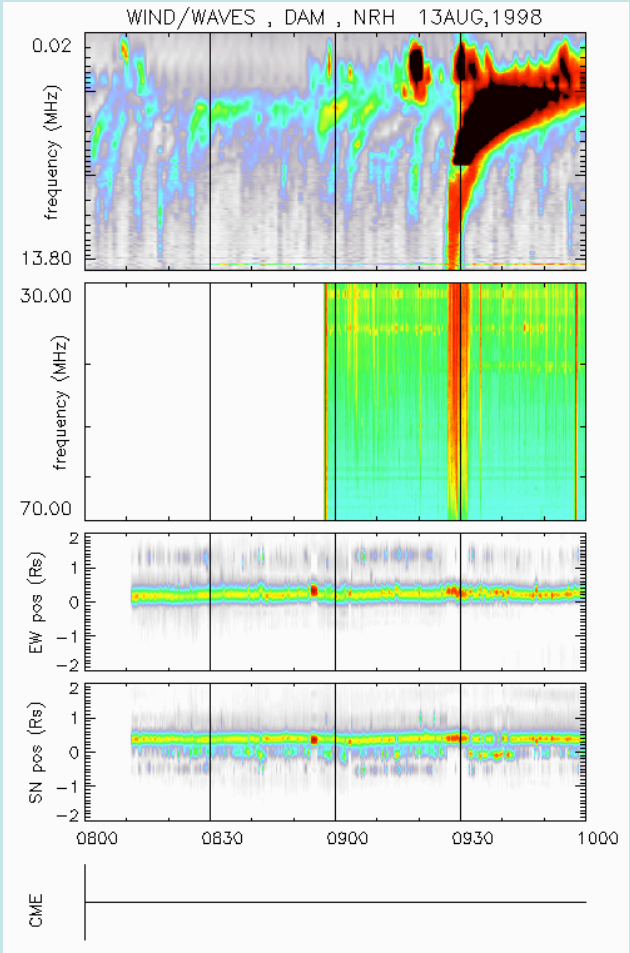
12:31:27 UT

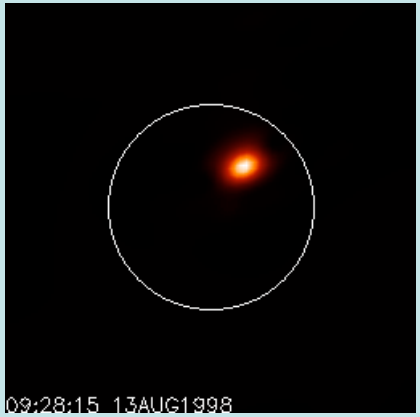
(2)



12:31:37 UT

August 13 1998 15:00 UT

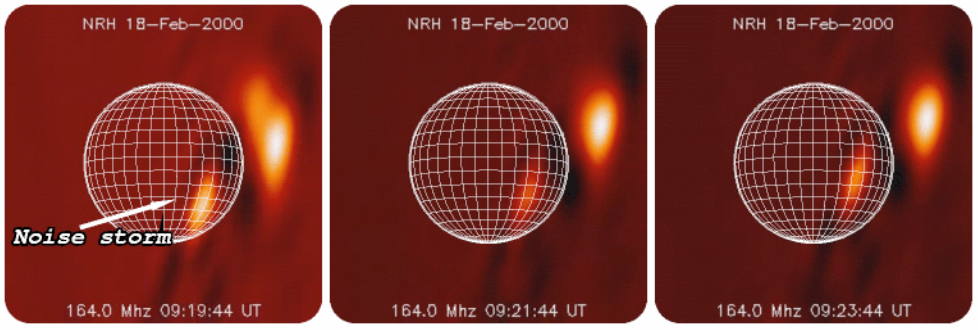




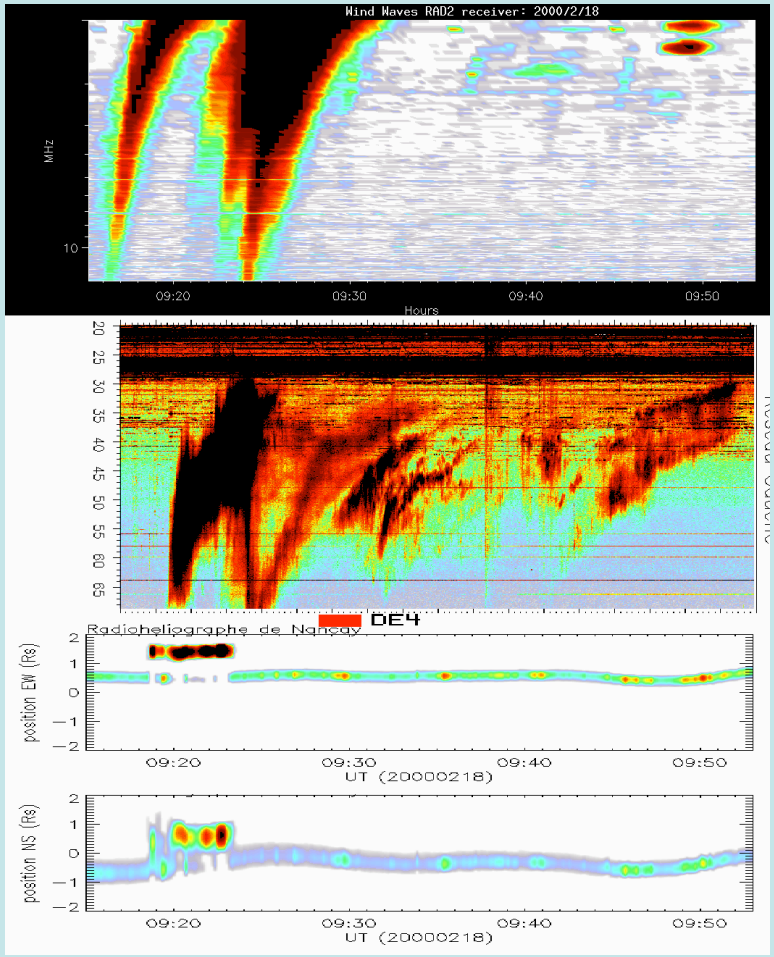
164 MHz 09:28:15 UT
Flare N19 E05 (Nitta et al. 06) 3

Coronal and IP Radio signatures
Delayed events

- Wide spectral coverage
- Radio source (dm-m)
- Complex evolution
  (**spectral, spatial and temporal**)



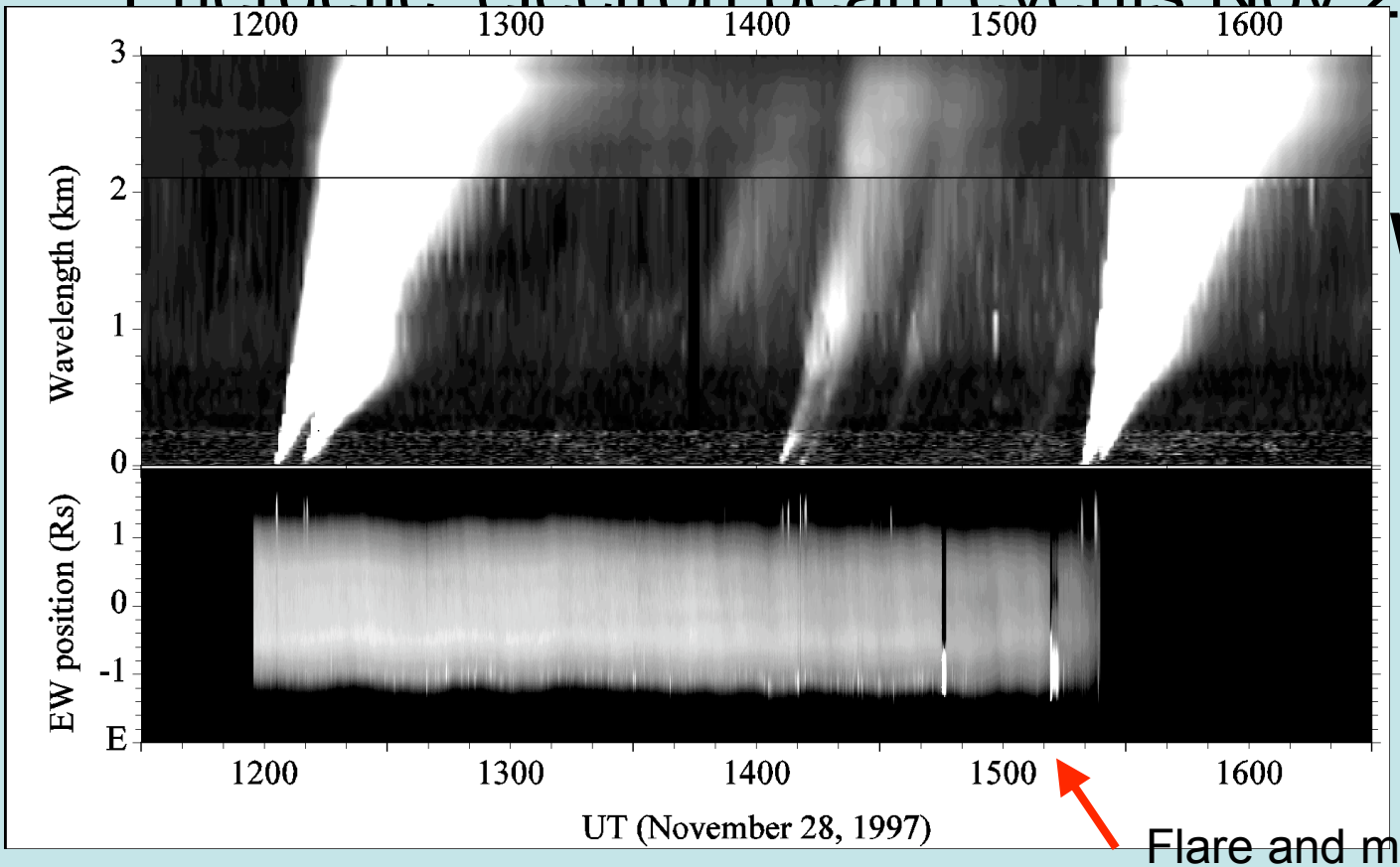
Pick et al., 2002, 2003 AdspR
Maia and Pick 2004 ApJ



18 February 2000

Source identification electron injecyion and delayed events

Energetic electron beam events Nov 28 1997



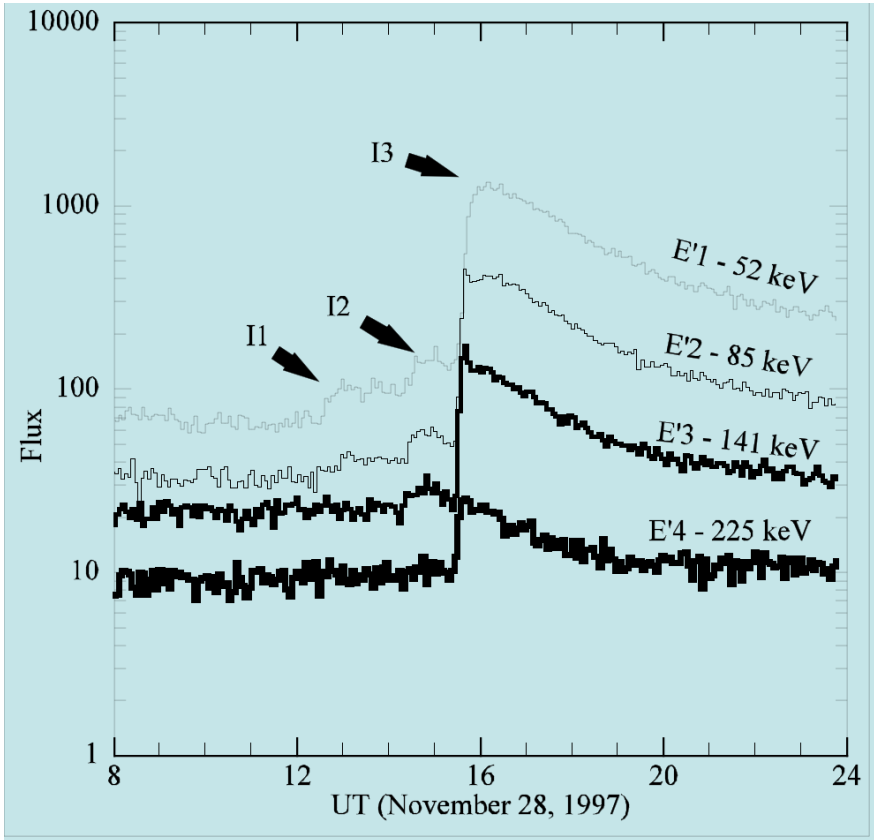
WIND/WAVES

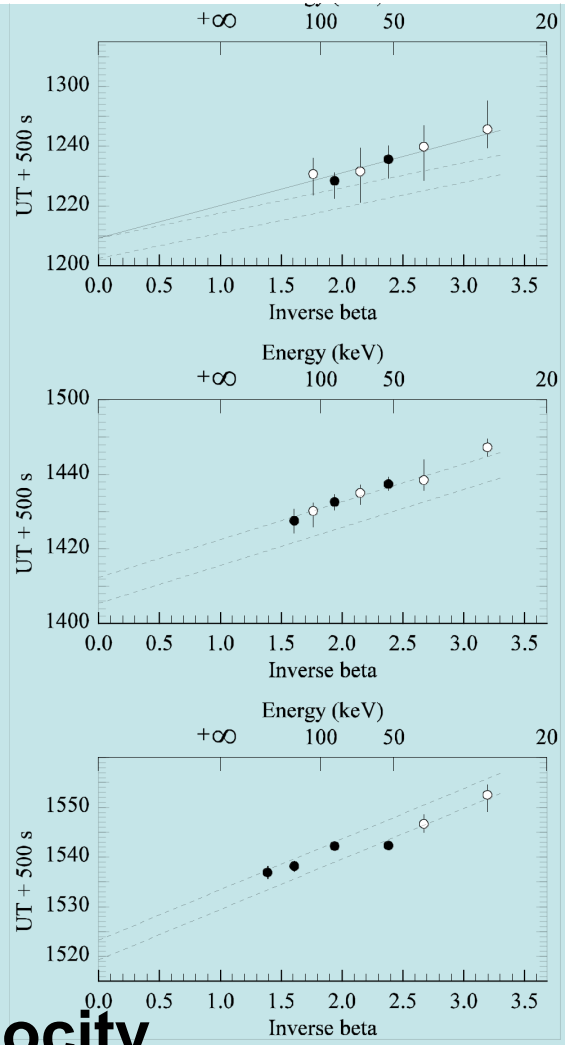
NRH E-W plot

Flare and m radio bursts

Three similar radio events located on the western limb.
Each event includes two successive type III groups separated by 4 or 5 minutes. Third one the most enetgetic; 2 injections requested

D. Maia, M. Pick, S. E. Hawkins, S. Krucker, The Astrophys., 500, 1058, 2001





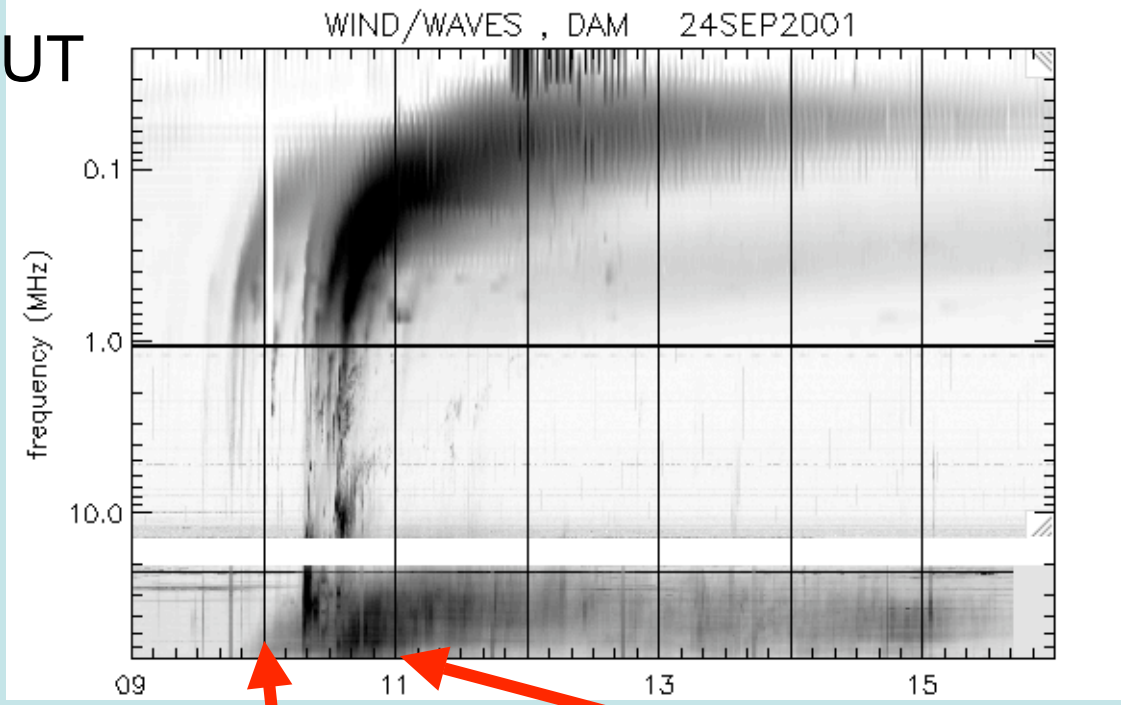
▪ ACE

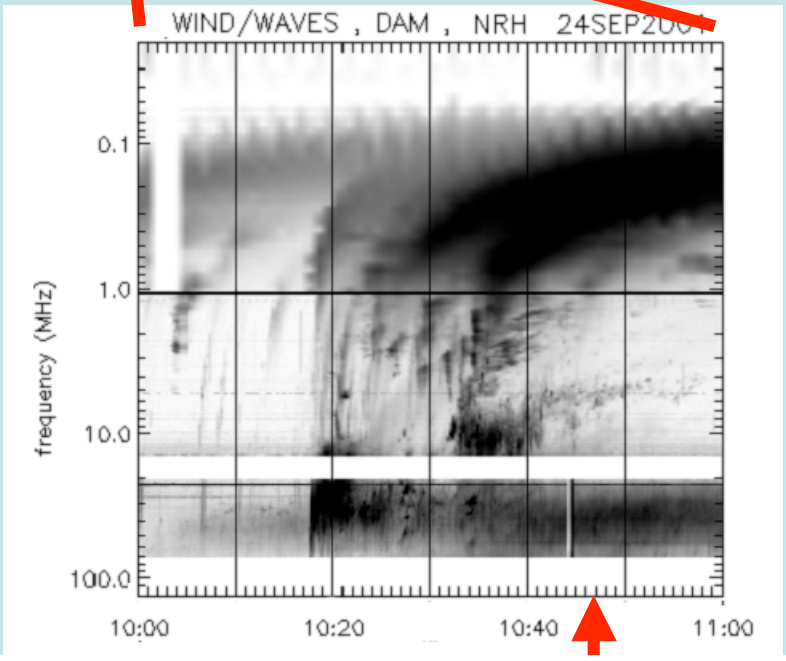
° WIND

<u>Right</u> Onset time versus inverse velocity

Dashed lines correspond to a release at the time of the two successive type III burst groups (PAD=0). I1 is a weak event. I2: release at the first solar injection. **I3 incompatible with one single injection.**

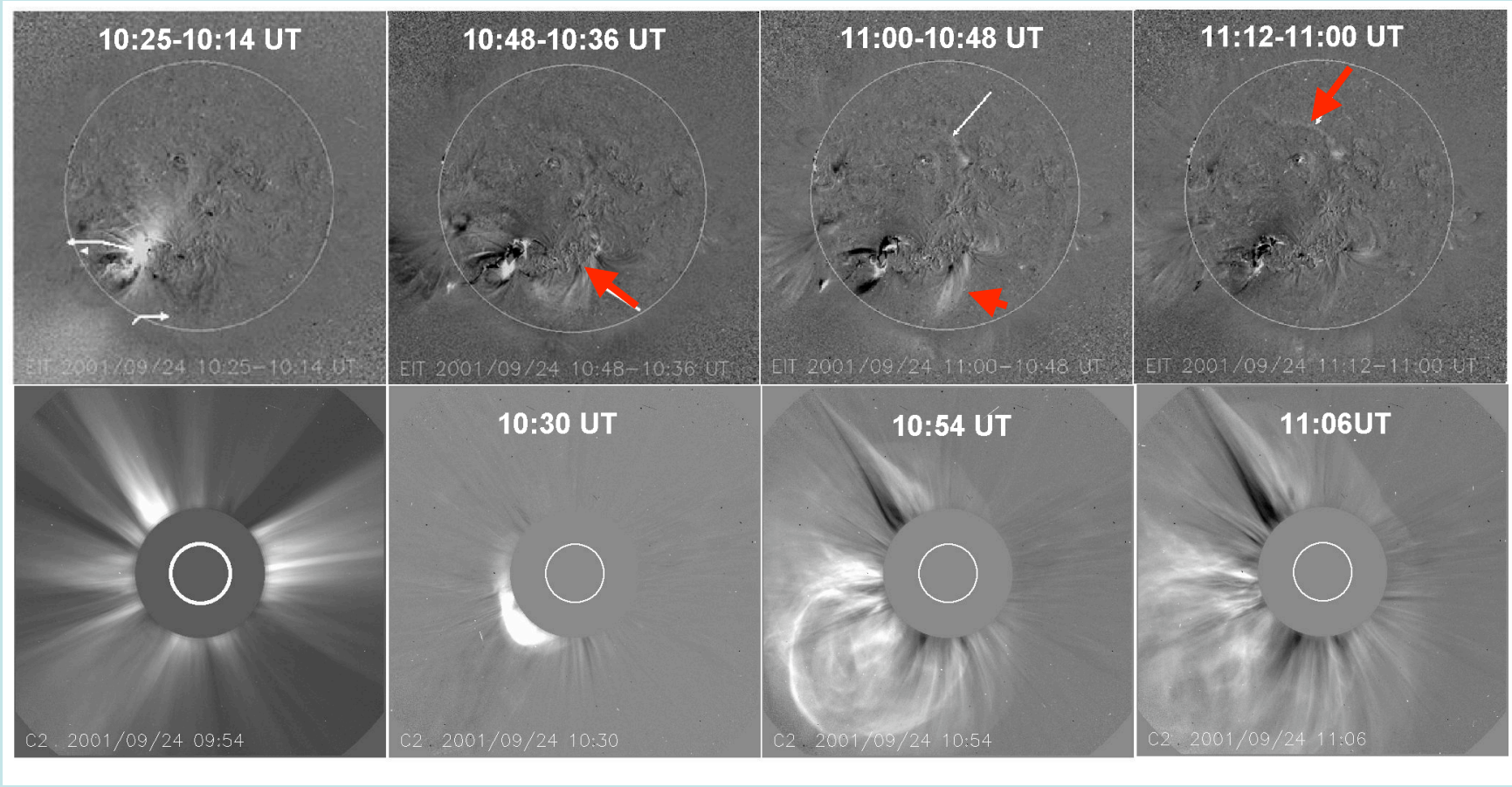
Flare 09:32 UT
S16E23





Electron release

ACE/EPAM release ~10:48 UT (corrected 8 min)



Western CME lateral expansion stops

Electrons accelerated in the interface compression region between the western flank of the CME and the open B coronal region

- END

A new web site for radio monitoring

M. Pick, M. Maksimovic, J. L. Bougeret, A. Lecacheux,
R. Romagnan, A. Bouteille, K. Suedile
LESIA, Observatoire de Paris
C. Alissandrakis, X. Moussas (Greece)

Why a web site for radio monitoring ?

Main objectives

-Radio associated with CMEs, onset, development

-Electron beams from the low corona to the interplanetary medium

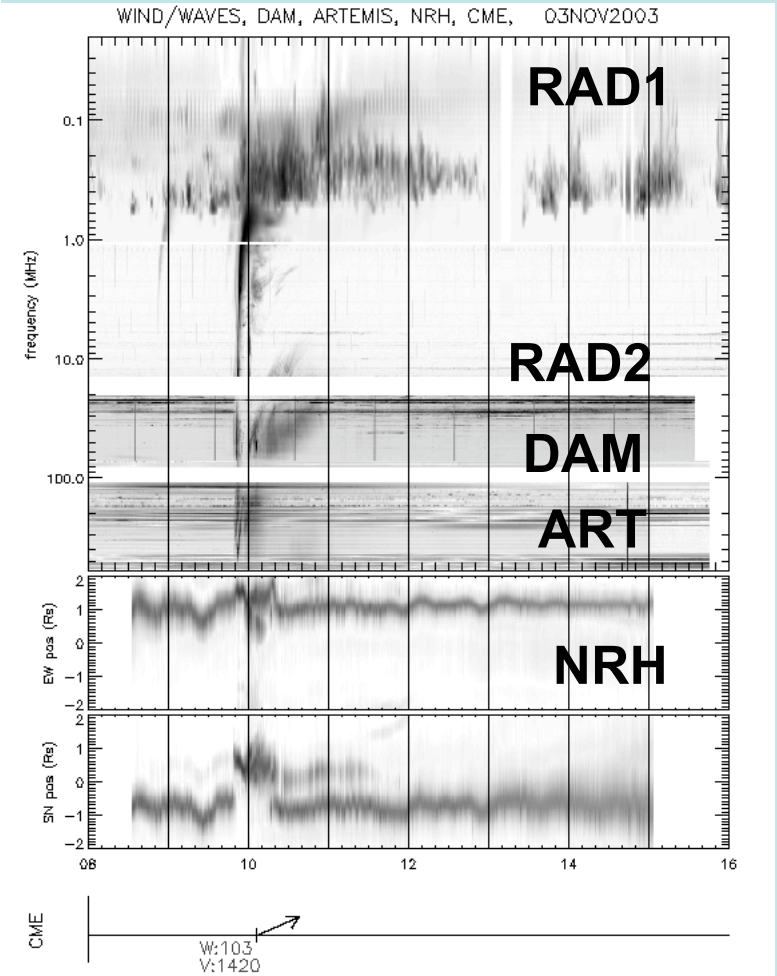
Goal: one radio spectrum in combining data from different spectrographs (large freq. Range)

-Nançay Radioheliograph

- **SECCHI CME summary** (R. Howard, A. Vourlidas)

-

Web Page



- **NRH 1D-images (EW and SN) 164 MHz**
- **Composite spectrum 600 MHz-≤ 25 MHz**
  Artemis
  Nançay DAM spectrograph
  WAVES/WIND
  RAD1 1min; RAD2 **: 16s**

- **NRH 2D-movie**
  Cad 120s 6-8 hours
  ZOOM Cad 10s /1hour
  RAD2 16S

- **Includes CME timing (***2006***-2005)**
  LASCO

- **To be developped**
  Link with S-Waves; SECCHI
  Stereo measurements (Nançay) DAM
  Daily spectrogramms
  Include higher freuquencies

Web page

- http://secchirh.obspm.fr

19980502.mpg