



Commission J

Radio Astronomy



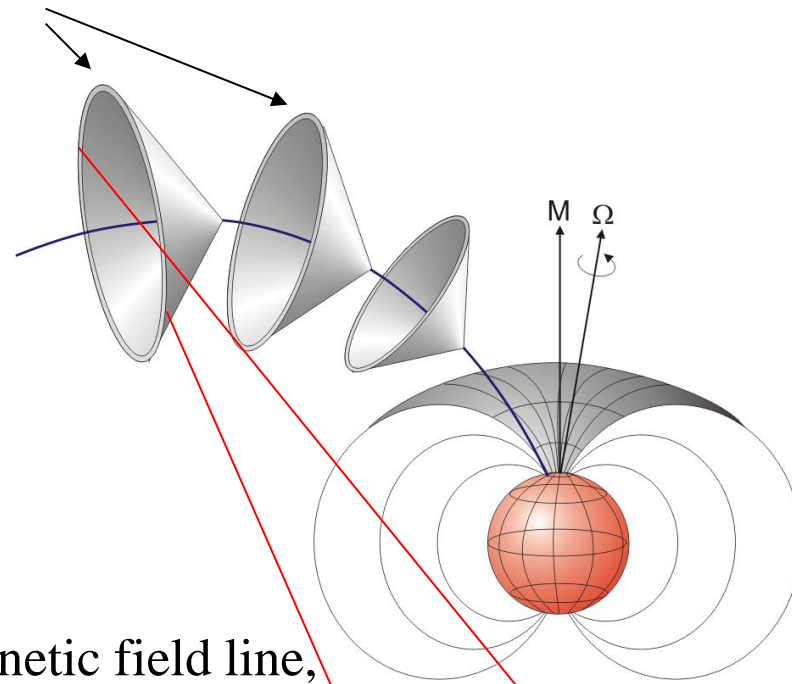
# Stereoscopic Planetary Radio Astronomy: Unique discrimination of Jovian radio components

Helmut O. Rucker  
Space Research Institute  
Austrian Academy of Sciences

URSI Austria Team Meeting  
Graz, June 27, 2013

# Hollow cone model of Jovian arcs

Hollow cones at  
each gyrofrequency

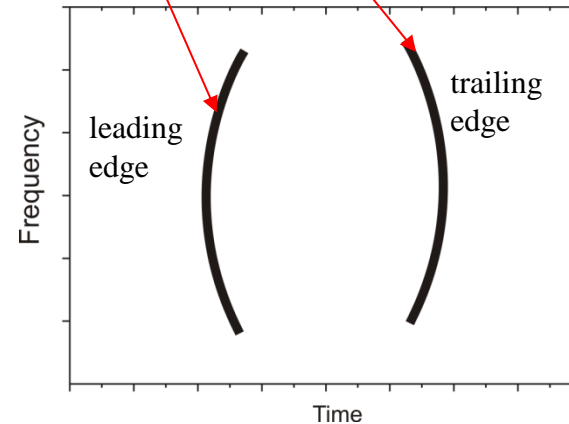


Hollow cones,  
distributed by altitude along magnetic field line,

rotating with Jupiter's period (9,92 hrs)  
(= non-Io emission)

or

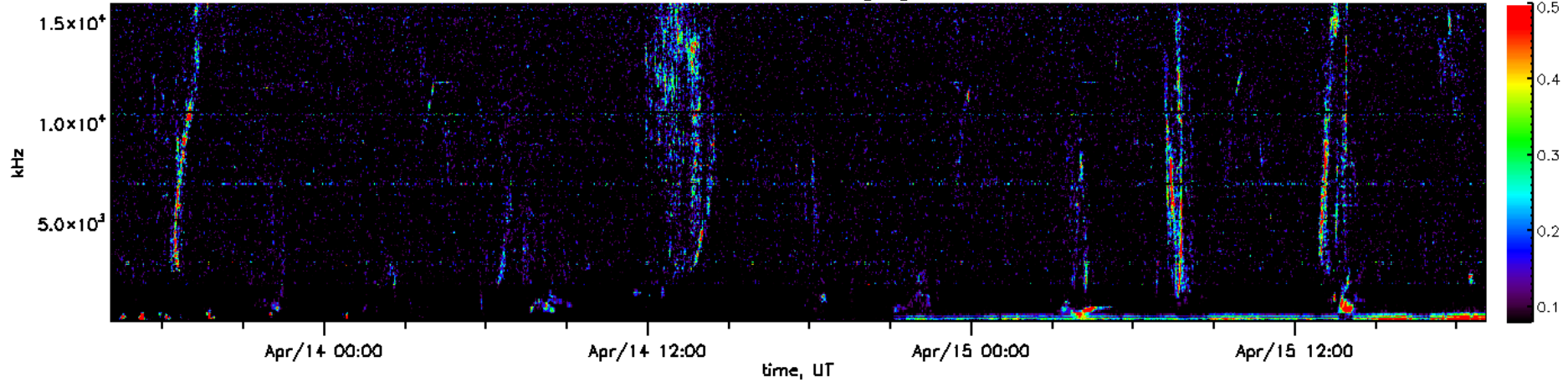
Io's flux tube (42,5 hrs)  
(= Io emission)



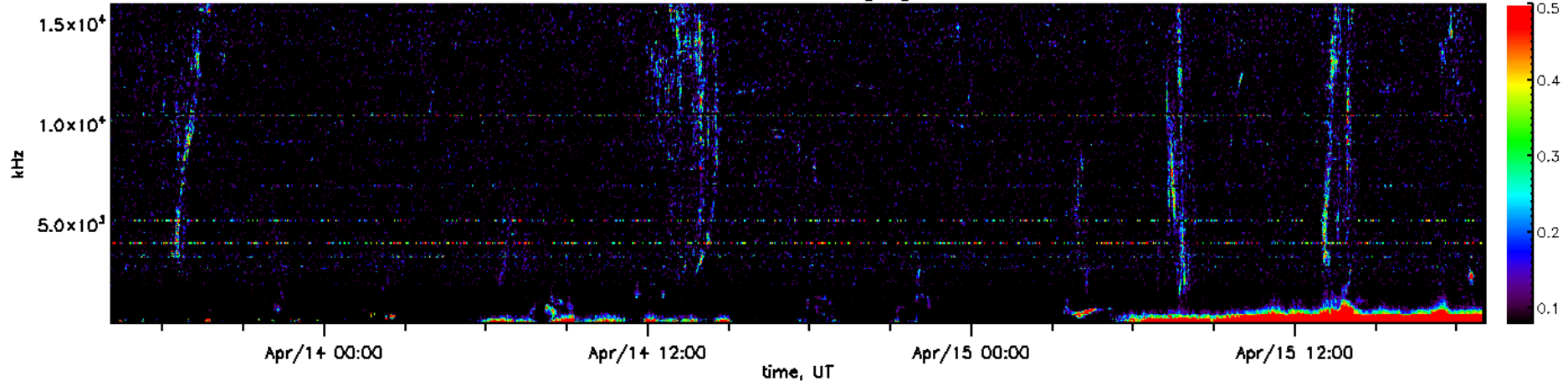
Adapted from  
Kaiser et al., 2000

# Jovian „arc-like“ emission observed by STEREO

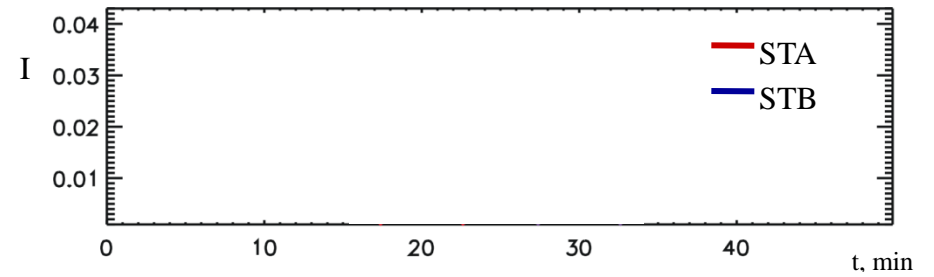
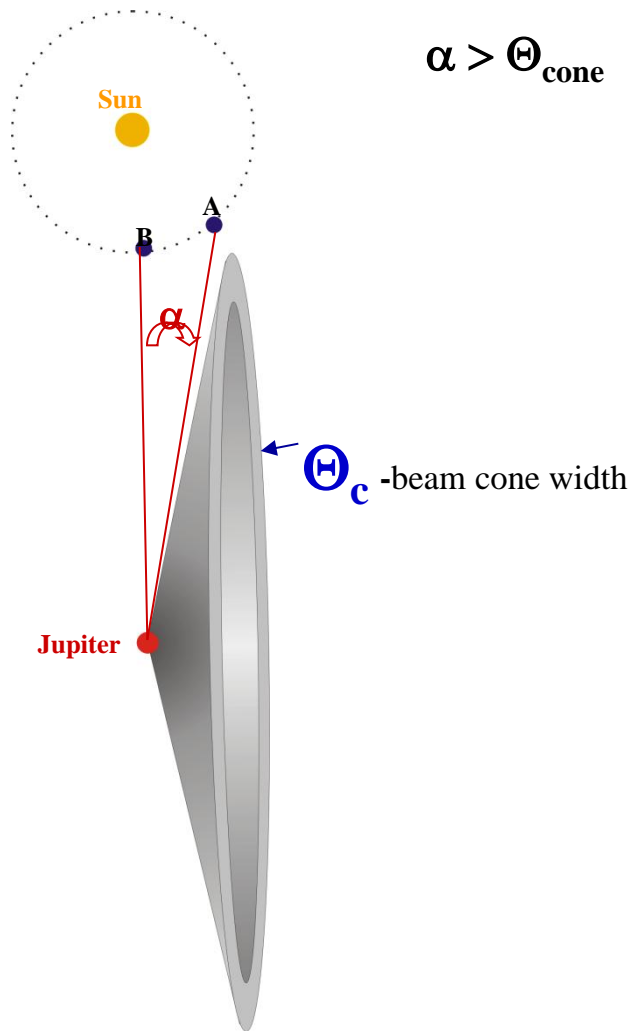
Stereo A 2008 [dB]



Stereo B 2008 [dB]

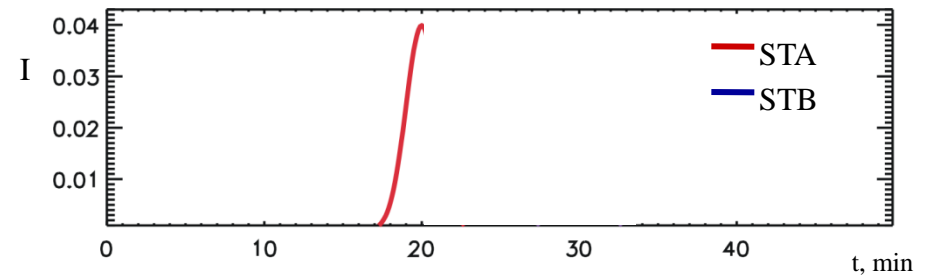
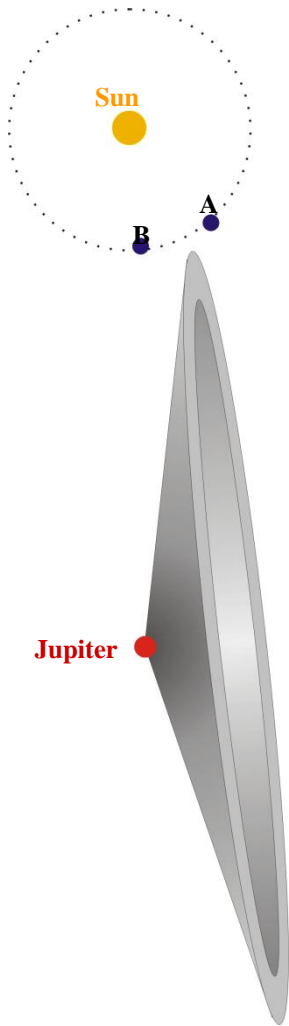


# Stereoscopic observation of DAM by STEREO-A and -B



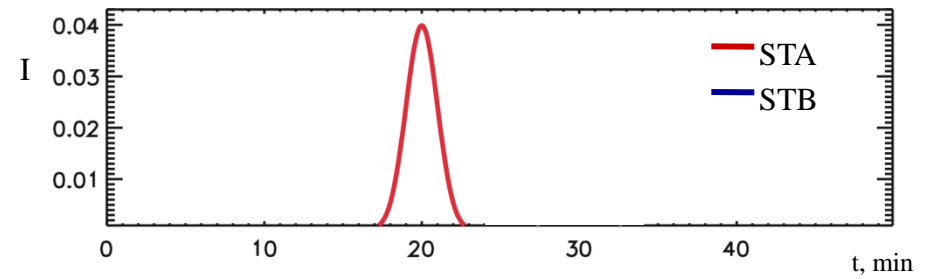
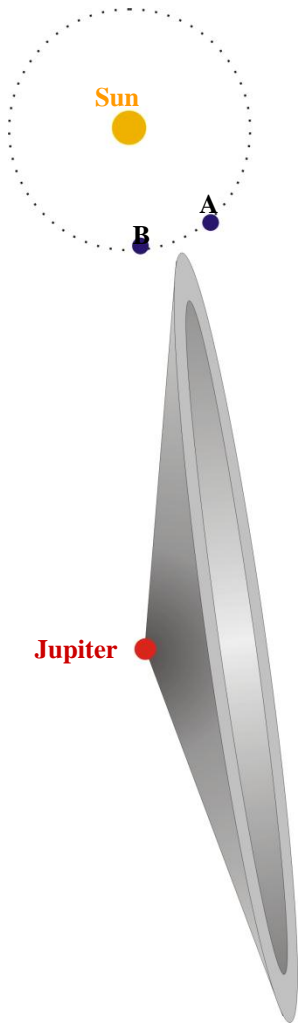
Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft

# Stereoscopic observation of DAM by STEREO-A and -B



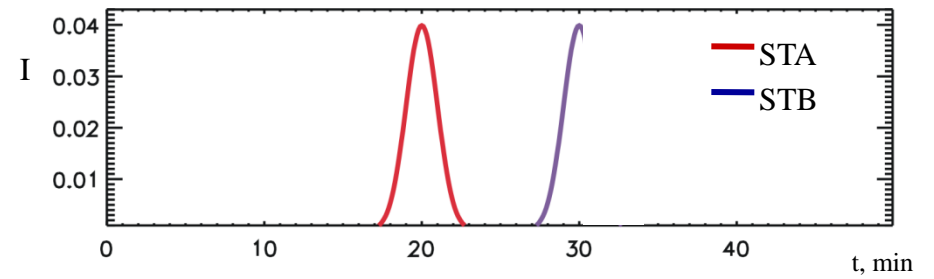
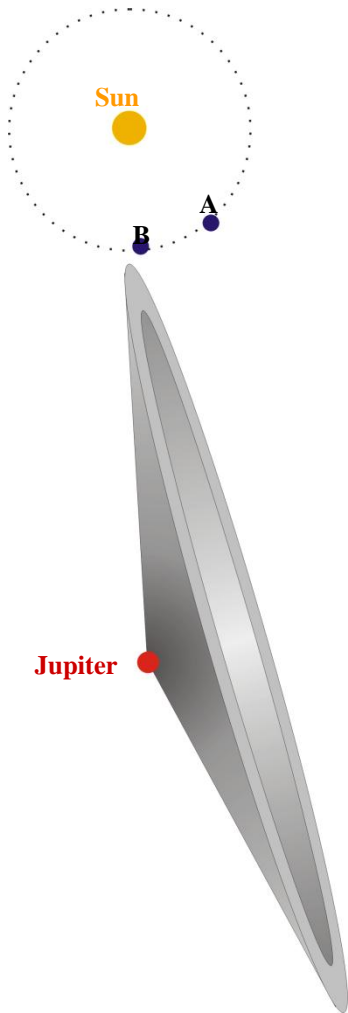
Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft

# Stereoscopic observation of DAM by STEREO-A and -B



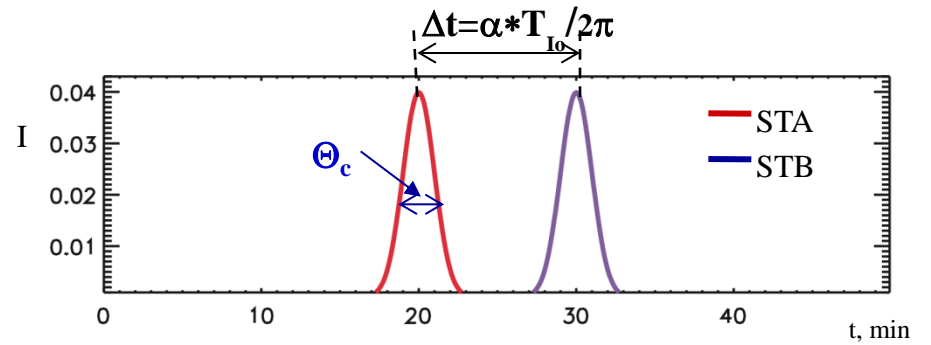
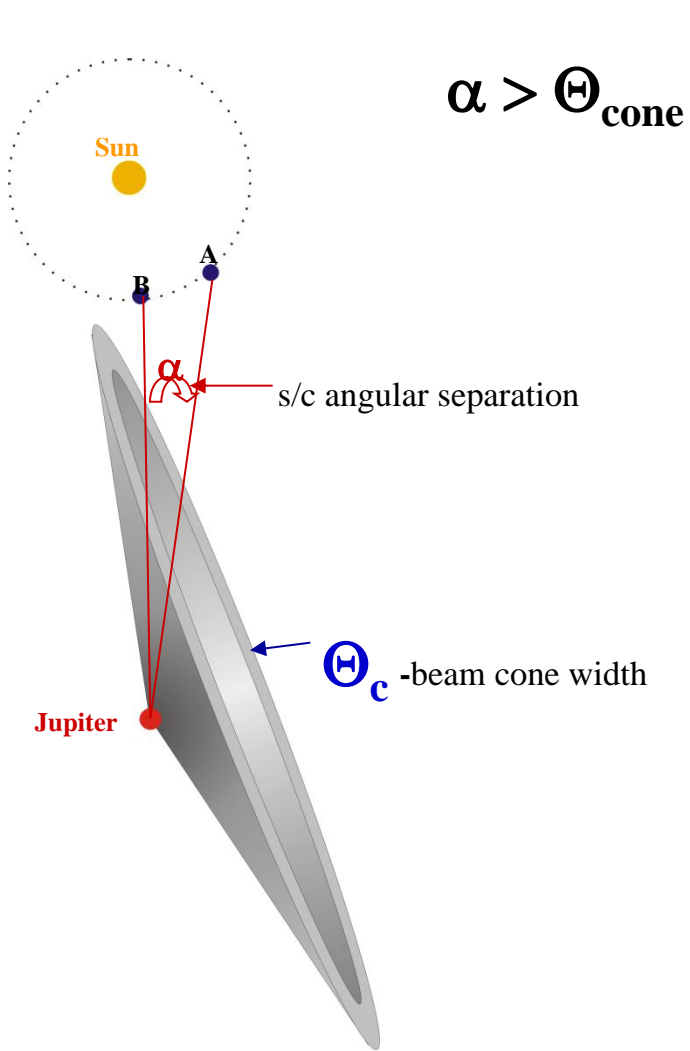
Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft

# Stereoscopic observation of DAM by STEREO-A and -B



Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft

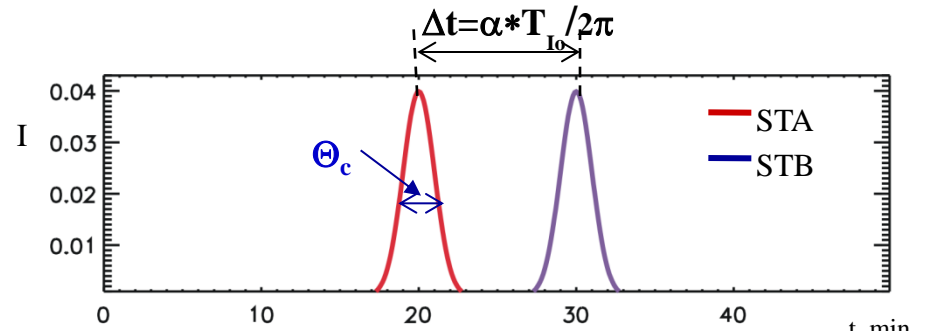
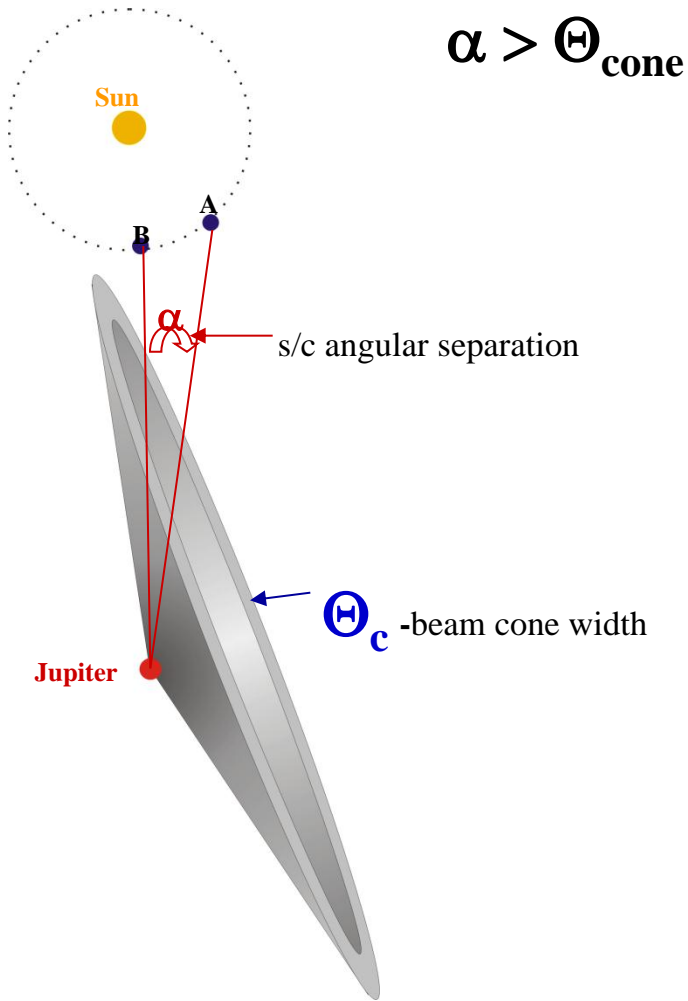
# Stereoscopic observation of DAM by STEREO-A and -B



Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft



# Stereoscopic observation of DAM by STEREO-A and -B



Emission cone width:

Io-C:  $1.07^\circ - 1.12^\circ$  (22 episodes)

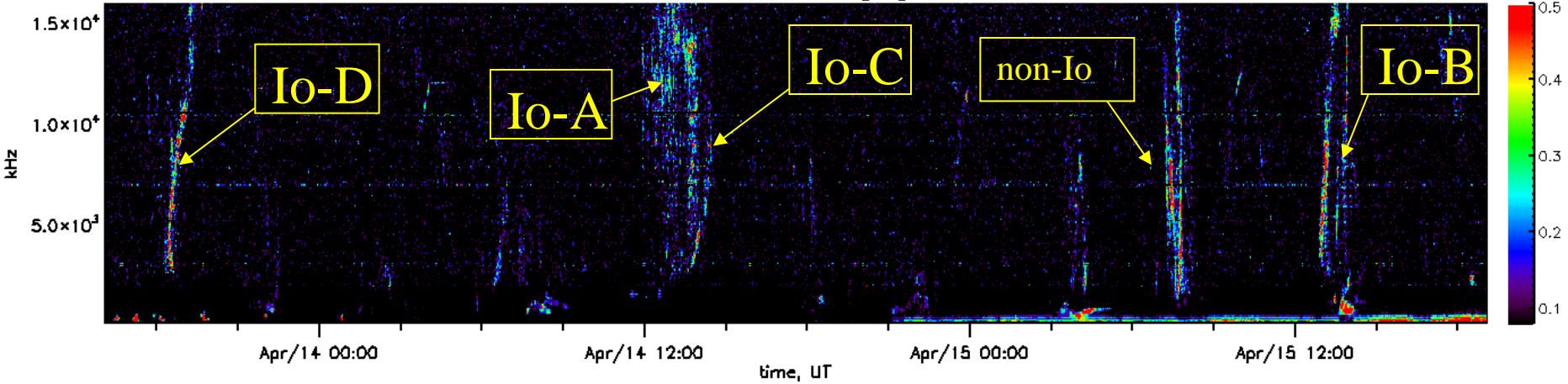
Io-D:  $0.96^\circ - 1.08^\circ$  (24 episodes)

non-Io:  $1.11^\circ - 1.13^\circ$  (21 episodes)

Schematic illustration of stereoscopic observation of the Jovian „arc-like“ emission by STEREO-A and -B spacecraft

# Jovian „arc-like“ emission observed by STEREO

Stereo A 2008 [dB]



Stereo B 2008 [dB]

