



Observing Application

Date : Apr, 15 2013
 Proposal ID : VLA/13A-508
 Legacy ID : AC1166
 PI : Alessandra Corsi
 Type : Director's Discretionary
 Time - Exploratory Time
 Category : Energetic Transients and
 Pulsars
 Total Time : 12.25

LATE-TIME FOLLOW-UP OF GRB 130215A WITH THE VLA

Abstract:

Recently, under our program VLA/13A-411, we detected bright radio emission from gamma-ray burst (GRB) 130215a. In addition to our 2-epoch observations with the VLA, we carried out an extensive broad-band follow-up from mm to optical wavelengths using CARMA, the Palomar 60-inch telescope, and the Palomar 200-inch telescope. Later on, this GRB was identified as a supernova-associated GRB. With a mm peak flux of 4.5mJy, GRB130215a is among the brightest GRBs with mm detections. Its radio light curve is peculiar in the fact that it shows a 20-day long flat profile, followed by a steep decay (likely, a jet break). If confirmed via additional follow-up, the jet break can allow us to estimate the energy in the ultra-relativistic component. Later-time observations can constrain the total energy (including any mildly relativistic component). Here, we ask for 12.25 hrs of VLA observations (9.75 hrs at highest priority, the remaining 2.5 hrs only if the source is detected in the latest of the earlier observations), so as to complement our early-time data and constrain the dynamics of the explosion, its geometry, and total energy.

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Related proposals:

13A-411, 13A-046, VLA/13A-370

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Single Pointing(s)

VLA Resources

Name	Conf.	Frontend & Backend	Setup
C-band	D	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 5000.0,7400.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
S-band	D	S Band 10 cm 2000 - 4000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 2500.0,3500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
K-band	D	K Band 1.3 cm 18000 - 26500 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 21500.0,22500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position		Velocity		Group
GRB130215a	Coordinate System	Equatorial	Convention	Optical	GRB
	Equinox	J2000			
	Right Ascension	02:53:56.70	Ref. Frame	Barycentric	
		00:00:00.0			
	Declination	+13:23:13.5	Redshift	0.597	
		00:00:00.0			
Calibrator	No				

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Earlier-obs	3.25	3	0 day	02:30:00	04:00:00	0
Later-obs	1.25	2	100 day	02:30:00	04:00:00	