



Observing Application

Date : Oct, 31 2012
 Proposal ID : VLA/12B-397
 Legacy ID : AN158
 PI : Susan Neff
 Type : Director's Discretionary
 Time - Exploratory Time
 Category : Active Galactic Nuclei
 Total Time : 5.0

Exploratory Low-Frequency Wideband Observations of Centaurus A

Abstract:

We propose exploratory imaging of the nearest radio galaxy, Cen A, using the new lowband system at P-band and 4-band. We will image the inner ~2degrees off the source, which encompasses the inner jet / inner double region, as well as the transition regions where energy is being transferred to the giant outer lobes. The resulting images will be used to confront models for energy transfer from the central AGN to the outer lobes, including jets, winds, shocks, and turbulence. This pilot observation is designed for near-term science return, as well as providing a chance to explore different approaches to high-fidelity imaging at low frequencies, and ionospheric mitigation over wide bandwidths.

Authors:

Name	Institution	Email	Status
Susan Neff	National Aeronautics and Space Administration	susan.g.neff@nasa.gov	
Frazer Owen	National Radio Astronomy Observatory	fowen@nrao.edu	
Jean Eilek	National Radio Astronomy Observatory	jeilek@ao.nrao.edu	
Huib Intema	National Radio Astronomy Observatory	hintema@nrao.edu	
William Cotton	National Radio Astronomy Observatory	bcotton@nrao.edu	

Principal Investigator: Susan Neff
 Contact: Susan Neff
 Telephone: 301 286 5137
 Email: susan.g.neff@nasa.gov

Related proposals:

VLA/11A-217

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Single Pointing(s)

VLA Resources

Name	Conf.	Frontend & Backend	Setup
------	-------	--------------------	-------

Name	Conf.	Frontend & Backend	Setup
Lowband	A	L Band 20 cm 1000 - 2000 MHz WIDAR RSRO	<p>Comments: Should say "Lowband receiver" but the form won't allow that.</p> <p>Three subbands, two at P-band, and one at 4-band, observed simultaneously.</p> <p>At P band, two subbands, probably 236-364 and 364-492MHz, each 1024 channels of width 125kHz, full polarization.</p> <p>At 4 band, either: 1) one subband, 54 to 86MHz, 1024 channels of width 31.25kHz, or 2) one subband, 26 to 90MHz, 1024 channels of width 62.5kHz; full polarization in either case.</p>

Testing Resource Images

Sources:

Name	Position		Velocity		Group
CenA	Coordinate System	Equatorial	Convention	Radio	Centaurus A
	Equinox	J2000			
	Right Ascension	13:25:27.61	Ref. Frame	LSRK	
		00:00:00.0			
Declination	-43:01:08.8	Velocity	547.12131		
	00:00:00.0				

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
A_array	5.00	1	0 day	11:00:00	16:00:00	8

Session Constraints:

Name	Constraints	Comments
A_array	Cannot move start and stop LST, source is only above horizon 4.5 hours.	Expect 0.25mJy/beam at P band, 5mJy/beam at 4-band

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
A_array	CenA	Lowband	5.0 hour	0.25 mJy/bm	

Present for observation: no

Staff support: None

Plan of Dissertation: no