



Observing Application

Date : Jul, 21 2009
 Proposal ID : VLA/09B-205
 Legacy ID : AD615
 PI : Kiruthika Devaraj
 Type : Rapid Response - Target of Opportunity
 Category : Solar System
 Total Time : 8.0

The disturbance of troposphere of Jupiter caused by a recent impact

Abstract:

There has been evidence that an object has impacted Jupiter between 3.00 am and 9.00 am PDT on July 20th, 2009. Infrared images by Glenn Orton taken with the IRTF and Keck II telescope facility show the impact site to be near the South Pole. We propose to observe Jupiter with the VLA at 3.6 cm and 1.3 cm wavelengths to monitor and study any perturbations of the upper and middle troposphere that resulted from the impact of the object. The infra-red images indicate a warming of the upper troposphere with possible extra emission from ammonia gas detected at mid-infrared wavelengths. Thermal emission from Jupiter at the microwave region gives information about the temperature and composition of the atmosphere. We expect to see a decrease in ammonia abundance at the impact site in the upper and middle troposphere and hence an increase in the brightness temperature in the microwave region.

Authors:

Name	Institution	Email	Status
Kiruthika Devaraj	Georgia Institute of Technology	kiruthika@gatech.edu	Graduating: N/A Thesis: false
Paul Steffes	Georgia Institute of Technology	steffes@gatech.edu	
Brigette Hesman	National Radio Astronomy Observatory	bhesman@aoe.nrao.edu	
Bryan Butler	National Radio Astronomy Observatory	bbutler@nrao.edu	

Principal Investigator: Kiruthika Devaraj
 Contact: Kiruthika Devaraj
 Telephone: 4048246863
 Email: kiruthika@gatech.edu

Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
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Name	Conf.	Frontend & Backend	Setup
Xband	C	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 8435.1,8485.1 MHz Bandwidth: 50 MHz
Kband	C	K Band 1.3 cm 18000 - 26500 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 22485.1,22435.1 MHz Bandwidth: 50 MHz

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
Jupiter 1	21:50:00.0 00:00:00.0	-14:11:00 00:00:00	J2000	Velocity : 0.00	Jupiter

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Jupiter	2.00	2	2 day	18:30:00	01:30:00	20
Jupiter	2.00	2	1 day	18:30:00	01:30:00	20

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Jupiter	Jupiter 1	Xband	2.0 hour	0.015 mJy/bm	
Jupiter	Jupiter 1	Kband	2.0 hour	0.03 mJy/bm	

Present for observation: yes

Staff support: None

Plan of Dissertation: no