Observing Application

Date :	Jan, 09 2009
Proposal ID :	VLA/08C-245
Legacy ID :	AC952
PI :	Claire Chandler
Type :	Rapid Response - Exploratory Time
Category :	Stellar
Total Time :	6.0

Monitoring the ionized disk or protostar Orion Source I

Abstract:

We request 6 hours of observing time to perform deep Q-band continuum observations of the ionized disk of protostar Orion Source I in the VLA A-configuration, in order to increase our monitoring time baseline from 5.4 years to 8.25 years. The motivation is two-fold. Firstly, preliminary results of the 5.4 year monitoring suggest that we are detecting apparent expansion of the disk along its minor axis, also observed in maser emission. However, an alternative explanation could also be a coherent change in source position angle due to a precessing disk. An additional epoch would help differentiate between scenarios. Secondly, the observations are to confirm the X-band position and proper motion of Source I of ~8 mas/yr reported by Gomez et al. (2005, 2008). Position uncertainties in our 43 GHz dataset will be ~3 mas, allowing for a clear detection over the >8 yr time frame. If the positions of the X- and Q-band observations coincide then the masers of Source I are indeed well-centered on the star, and our working model for Source I is correct.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Q-band	A	Q Band 0.7 cm 40000 - 50000 MHz VLA Correlator - Single Channel Continuum	Rest frequencies: 43314.9,43364.9 MHz Bandwidth: 50 MHz

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
Source I	05:35:15.0 00:00:00.0	-5:22:31 00:00:00	J2000	Velocity : 7.00	Orion

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
SrcIQ	3.00	2	0 day	01:00:00	10:00:00	15

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
SrcIQ	Source I	Q-band	3.0 hour	0.1 mJy/bm	

Present for observation: no Staff support: None Plan of Dissertation: no