



## 10483 - HH110: Collision between a Jet and a Cloud

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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### VISITS

<i>Visit</i>	<i>Targets</i>	<i>Configurations</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) HH110	ACS/WFC	1	20-Jun-2005 12:11:11.0	yes

1 Total Orbits Used

### ABSTRACT

We propose to study the shortlived event when a high-velocity protostellar outflow collides with a dense molecular cloud core. It has recently been realized that Herbig-Haro flows can attain gigantic proportions, with flow lobes stretching over many parsecs. This greatly increases the probability that an

## Proposal 10483 - Overview

outflow rams into an obstacle such as a molecular cloud core as it plows through the interstellar medium. The HH 110 flow represents the rare case of an outflow that has suffered a grazing collision with a cloud core. Fortunately, the resulting shock is so bright that only a few orbits are required for analysis. ACS imaging in H $\alpha$  in Cycles 12 and 14 will permit the study of detailed structure and kinematics of the flow as it passes through the region of impact. This study has consequences for our general understanding of the energy cycle and chemical processing of the interstellar medium, turbulence in molecular clouds, and the role of sequential star formation among low mass stars.

### **OBSERVING DESCRIPTION**

Due to the 2-gyro mode, we can not re-observe this field with an orientation constraint. Thus, the previously used 200 x 300" will not be used in this observations. Instead, we plan on covering only the 200x100" FOV that is provided by ACS. The entire body of HH110 will fit into this aperture for any orientation. The 4 exposures will consist of the recommended 3" dither to fill-in the gap between CCDs, augmented by the 2 pixel-diagonal dither to facilitate cosmic-ray and hot-pixel removal.

### **ADDITIONAL COMMENTS**

I re-submitted the phase II since these comments were not updated in the first submission.

Proposal 10483 - Visit 01 - HH110: Collision between a Jet and a Cloud

Mon Jun 20 16:11:18 GMT 2005

<b>Visit</b>	<b>Proposal 10483, Visit 01</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: ACS/WFC Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>			<b>Secondary Pattern</b>			<b>Exposures</b>	
(1)		Pattern Type=LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.994 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.3 Angle Between Sides= Center Pattern=false		Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.146 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.2 Angle Between Sides= Center Pattern=false		(1)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(1)	HH110	RA: 05 51 25.6000 (87.8566667d) Dec: +02 54 26.00 (2.90722d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position: 2003.0	V=(?) SURF(6563) = 3 +/-2 E-15	Coordinate Source: Other				
<i>Comments: This is a faint HH object, and our positional requirement within the ACS field is about 5 arcsec, so we are not concerned about proper motions.</i> <i>The knots vary greatly in brightness, the surface brightness listed is for a typical knot.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(1) HH110	(1) HH110	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Pattern 1-1 (1)	500.0 Secs [==>544.0 Secs (Pattern 1,1)] [==>544.0 Secs (Pattern 1,2)] [==>544.0 Secs (Pattern 2,1)] [==>544.0 Secs (Pattern 2,2)]	[1]

