Proposal Preparation and Submission

Harriet Parsons, Support Scientist, JAC/EAO

To implement the topics covered in this workshop you will need:

- A feasible science idea
- A computer
- Access to the internet for the following pages:



You may want to bookmark these links:

- www.eaobservatory.org/jcmt/instrumentation/continuum/scuba-2/itc/
- www.eaobservatory.org/jcmt/instrumentation/heterodyne/itc/
- www.eaobservatory.org/jcmt/proposals/northstar/

I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850 microns. The region is located at an RA and Dec of: 19h and +09°.

The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.



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The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.

1. Map Size	2. Weather Grade
This calculator presently supports only a pre-defined set of maps.	Provide the <u>CSO 225 GHz Opacity</u> to perform the calculation for.
• Type of map: Pong3600: 1 degree map ᅌ	Grade Opacity Representative value 1 < 0.05 0.045 2 0.05 - 0.08 0.065
3. Average Airmass	3 0.08 - 0.12 0.1 4 0.12 - 0.2 0.16 5 > 0.2 0.23
calculated from the source declination as 1 / [0.9*cos(pi/180 * (dec-19.823))]	• 225 GHz Tau: 0.1
• Source declination (degrees): 19	
4. Gridding	5. Target Sensitivity
See notes below. Enter values and type resampling factors:	Enter the 1-sigma rms (in mJy/beam) to be reached at
 Use Matched Beam filter factors: 	• 450 μm: [mJy/beam] • 850 μm: 5 [mJy/beam]
 450 μm: 8 850 μm: 5 	or • Observing Time: [min]
Ise Regridding factors:	
 450 μm: 4 850 μm: 4 	Note: If only one target rms is specified, the rms for the other array is based on a common integration time If the time field is used, any target rms's will be ignored.

www.eaobservatory.org/jcmt/ins



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SCUBA-2 Integration Time Calculator

v2.1 (2013-08-28 / module 0.01): Option to specify obs. time added. Based on early 2012 calibration info (~10-12% shorter times than previous version)

Results:

No 450 μm rms target was specified: the rms was calculated using the computed 850 μm integration time.

	450	850
Map type:	Pong	3600
Description:	Pong3600: 1	degree map
Source Declination: [Deg]:	19	.0
Average Airmass:	1.1	11
225 GHz Opacity:	0.1	00
SCUBA2 Opacity:	2.289	0.440
Transmission:	0.079	0.613
Resampling factors:	4.0	4.0
On-source Integration time [sec]:	53047	53047
hours, min, sec:	14 hr 44 min 7 s	14 hr 44 min 7 s

Broken into 40-min observations including per-observation overheads this results in:

RMS [mJy/beam]:	172.17	5.00
Required Observing time [sec]:	55117	55117
hours, min, sec:	15 hr 18 min 37 s	15 hr 18 min 37 s

ITCstring: Version=v2.1;ModuleVersion=v0.01;TYPE=Pong3600;DEC=19.0; TAU225=0.100;MODE=R;F450=4.0;F850=4.0;INTT450=53047;INTT850=53047; RMS850=5.00;OBS450=55117;OBS850=55117;

I have an interesting fragmented star forming complex I wish to observe. I wish to obtain a depth of 5mJy at 850 microns. The region is located at an RA and Dec of: 19h and +09°.

The complex I am interested in is large and spreads out nearly a degree in extent, requiring a Pong 3600 to cover the entire region.

RMS [mJy/beam]:	172.17	5.00
Required Observing time [sec]:	55117	55117
hours, min, sec:	15 hr 18 min 37 s	15 hr 18 min 37 s
ITCstring: Version=v2.1;ModuleVersion TAU225=0.100;MODE=R;F450=4.0;F850 RMS850=5.00;OBS450=55117;OBS850	=v0.01;TYPE=Pong36 0=4.0;INTT450=5304 =55117;	500;DEC=19.0; 7;INTT850=53047;

In Band 2 requires: 10 hours In Band 3 requires: 15.5hours In Band 4 requires: 31 hours

Remember to copy the ITC string into your proposal!

I have a collection of 50 Sub-Millimetre Galaxies (SMG's) at a redshift of z=4. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

These objects are faint and compact. I expect to use the beam match filter during the reduction stage. The SMG's either have Declinations around: -32° (in the SGP, 38 in total) or Declinations around +30° (in the NGP, 12 in total).



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1. Map Size 2. Weather Grade This calculator presently Provide the CSO 225 GHz Opacity to supports only a pre-defined set perform the calculation for. of maps. Grade Opacity Representative value • Type of map: 0.045 Daisy: ~3 arcmin map 1 < 0.05 0 0.065 2 0.05 - 0.08 0.08 - 0.12 0.1 3 4 0.12 - 0.2 0.16 3. Average Airmass 5 > 0.2 0.23 The average airmass will be calculated from the source • 225 GHz Tau: 0.065 declination as 1 / [0.9*cos(pi/180 * (dec-19.823))] Source declination (degrees): -32.0 4. Gridding 5. Target Sensitivity Enter the 1-sigma rms (in mJy/beam) to See notes below. Enter values and type resampling factors: be reached at Use Matched Beam filter • 450 µm: [[mJy/beam] factors: • 850 µm: 4 [mly/beam] 450 μm: 4.0 or • 850 µm: 4.0 • Observing Time: [min] ○ Use Regridding factors: Note: If only one target rms is specified, • 450 µm: 4 the rms for the other array is based on a • 850 µm: 4 common integration time If the time field is used, any target rms's will be ignored.

show me! reset!

www.eaobservatory.org/jcmt/in

I have a collection of 50 Sub-Millimetre Galaxies (SMG's) at a redshift of z=4. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

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SCUBA-2 Integration Time Calculator

v2.1 (2013-08-28 / module 0.01): Option to specify obs. time added. Based on early 2012 calibration info (~10-12% shorter times than previous version)

Results:

No 450 μm rms target was specified: the rms was calculated using the computed 850 μm integration time.

	450	850
Map type:	D	aisy
Description:	Daisy: ~3	arcmin map
Source Declination: [Deg]:	-:	32.0
Average Airmass:	1	.798
225 GHz Opacity:	0	.065
SCUBA2 Opacity:	1.379	0.279
Transmission:	0.084	0.606
Resampling factors:	4.0	4.0
On-source Integration time [sec]:	1089	1089
hours, min, sec:	0 hr 18 min 9 s	0 hr 18 min 9 s

Broken into 30-min observations including per-observation overheads this results in:

RMS [mJy/beam]:	122.71	4.00
Required Observing time [sec]:	1179	1179
hours, min, sec:	0 hr 19 min 39 s	0 hr 19 min 39 s

ITCstring: Version=v2.1;ModuleVersion=v0.01;TYPE=Daisy;DEC=-32.0; TAU225=0.065;MODE=M;F450=4.0;F850=4.0;INTT450=1089;INTT850=1089; RMS850=4.00;OBS450=1179;OBS850=1179;

I have a collection of 50 Sub-Millimetre Galaxies (SMG's) at a redshift of z=4. I wish to observe them at both 450 and 850 microns. I need to achieve a depth of between 3.5 and 4.5 mJy/beam at 850 microns.

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2. Weather Grade
Provide the <u>CSO 225 GHz Opacity</u> to perform the calculation for.
Grade Opacity Representative
1 < 0.05 0.045
2 0.05 0.08 0.065 3 0.08 - 0.12 0.1
$\begin{array}{cccc} 4 & 0.12 - 0.2 & 0.16 \\ 5 & > 0.2 & 0.23 \end{array}$
• 225 GHz Tau: 0.065
5. Target Sensitivity
Enter the 1-sigma rms (in mJy/beam) to be reached at
• 450 μm: [mJy/beam] • 850 μm: 4 [mJy/beam]
or • Observing Time: [min]
Note: If only one target rms is specified, the rms for the other array is based on a common integration time If the time field is used, any target rms's will be ignored.

www.eaobservatory.org/jcmt/

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SCUBA-2 Integration Time Calculator

v2.1 (2013-08-28 / module 0.01): Option to specify obs. time added. Based on early 2012 calibration info (~10-12% shorter times than previous version)

Results:

No 450 μm rms target was specified: the rms was calculated using the computed 850 μm integration time.

	450	850
Map type:	Dai	isy
Description:	Daisy: ~3 a	rcmin map
Source Declination: [Deg]:	30	.0
Average Airmass:	1.1	29
225 GHz Opacity:	0.0	65
SCUBA2 Opacity:	1.379	0.279
Transmission:	0.211	0.730
Resampling factors:	4.0	4.0
On-source Integration time [sec]:	695	695
hours, min, sec:	0 hr 11 min 35 s	0 hr 11 min 35 s

Broken into 30-min observations including per-observation overheads this results in:

RMS [mJy/beam]:	59.73	4.00
Required Observing time [sec]:	785	785
hours, min, sec:	0 hr 13 min 5 s	0 hr 13 min 5 s

ITCstring: Version=v2.1;ModuleVersion=v0.01;TYPE=Daisy;DEC=30.0; TAU225=0.065;MODE=M;F450=4.0;F850=4.0;INTT450=695;INTT850=695; RMS850=4.00;OBS450=785;OBS850=785;

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RMS [mJy/beam]:	122.71	4.00
Required Observing time [sec]:	1179	1179
hours, min, sec:	0 hr 19 min 39 s	0 hr 19 min 39 s

ITCstring: Version=v2.1;ModuleVersion=v0.01;TYPE=Daisy;DEC=-32.0; TAU225=0.065;MODE=M;F450=4.0;F850=4.0;INTT450=1089;INTT850=1089; RMS850=4.00;OBS450=1179;OBS850=1179;

Required Observing time [sec]:	785	785
hours, min, sec: 0) hr 13 min 5 s	0 hr 13 min 5 s

ITCstring: Version=v2.1;ModuleVersion=v0.01;TYPE=Daisy;DEC=30.0; TAU225=0.065;MODE=M;F450=4.0;F850=4.0;INTT450=695;INTT850=695; RMS850=4.00;OBS450=785;OBS850=785;

Total time required:

(38 x 20mins) + (12 x 13mins) (12hours 40 mins) + (2 hours 36 mins)

15 hours 16 mins Band 2 time.

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP. Out particular intent is to search for and quantify any molecular outflows that are present within the region.

The area we wish to observe is 1900" x 1700". From existing data we expect the lines to be around 10K, with widths of ~4km/s. We therefore request a sensitivity of 0.6K in 1km/s bins.



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The area we wish to observe is 1900" x 1700". From existing data we expect the lines to be around 10K, with widths of ~4km/s. We therefore request a sensitivity of 0.6K in 1km/s bins. For a target sensitivity of 0.6000 K Ta* (600.0 mK) the on-source only integration time will be

0.50 seconds per point resulting in a

total duration of 1:28 hrs

per observation, based on Trx= 90.0 and Tsys= 479.8.

Integration time is: **1h 28m if tau = 0.2 (Band 3)** 3h 16 m if tau = 0.15 (band 4)

For the proposal:

This project aims to map a molecular cloud at a declination of -34° in CO (3-2) using HARP. Out particular intent is to search for and quantify any molecular outflows that are present within the region.

The area we wish to observe is 1900" x 1700". From existing data we expect the lines to be around 10K, with widths of ~4km/s. We therefore request a sensitivity of 0.6K in 1km/s bins.

HITEC Parameters:		
Declination	-34°	
Area	1900" x 1700"	
Transition	CO:J=3-2 (345.796 GHz)	
rms	0.6K	
Resolution	1km/s	
Weather	Band 3 (Tau22 = 0.15)	
Observation type	Raster – position switch	
	1/2 array scan spacing	
	Basket Weave	

Request 1.5 hours Band 3 time.

I wish to investigate the HCN level in a comet. It is difficult to calculate the exact expected sensitivity but it is around the ~0.5K limit. I will need a rms of 0.05K with a resolution of 0.25km/s.

It will be difficult to predict which weather band the comet will be observed in (it will need to be classically scheduled). As a result of the weather uncertainty I will base my proposal on poor weather – Band 4.



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It will be difficult to predict which weather band the comet will be observed in (it will need to be classically scheduled). As a result of the weather uncertainty I will base my proposal on poor weather – Band 4.



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It will be difficult to predict which weather band the comet will be observed in (it will need to be classically scheduled). As a result of the weather uncertainty I will base my proposal on poor weather – Band 4. For a target sensitivity of 0.0500 K Ta* (50.0 mK) the on-source only integration time will be

1466.60 seconds per point resulting in a

total duration of 1:01 hrs

per observation, based on Trx= 90.0 and Tsys= 575.5.

Required integration time is: 1h if tau = 0.14 (the 'good' part of weather band 4)

For the proposal:

I wish to investigate the HCN level in a comet. It is difficult to calculate the exact expected sensitivity but it is around the ~0.5K limit. I will need a rms of 0.05K with a resolution of 0.25km/s.

It will be difficult to predict which weather band the comet will be observed in (it will need to be classically scheduled). As a result of the weather uncertainty I will base my proposal on poor weather – Band 4.

HITEC Parameters:					
Declination	+62°				
Area	n/a				
Transition	HCN:J=4-3 (354.51 GHz)				
rms	0.05K				
Resolution	0.25km/s				
Weather	Band 4 (Tau225 = 0.14)				
Observation type	Stare				

Request 1 hour Band time

You have your science idea. You know it can be done. Now you must ask for time.



http://www.eaobservatory.org/jcmt/proposals/northstar/

First you will need a NorthStar account (unless you have one already)

Welcome to NorthStar at JCMT



Registrati	ion (Step 1/3)
	help
seraccount:	
Username:	•
A password will automatically be genera	ated after successful registration. This
password may be changed once you are	e logged in.
2. 8. 이런지 A	
ersonal information:	
title	
first name:	
last name:	
email:	*
phone(first):	•
phone(second):	
fax	
	1
	Next > Cancel

Registration (Step 2/3)	
	<u>help</u>
Add institution from list	○ Add new institution
Choose institution	▼
Choose institution	
	Add institution from list Iist: Choose institution Choose institution

	Confirmation (Step 3/3)	
		help
ersonal inform	ation:	
	username:hparsons	
	title: Dr	
	firstname:Harriet	
	lastname:Parsons	
	email:h.parsons@jach.hawai	i.edu
	phone(first):808	
	phone(second):	
	fax:	
stitution:		
	institute:EAO	
	department:	
	address:660 N Aohoku Place	
	city:Hilo	
	state:Hawaii	
	country:USA	
	zipcode:96720	
	Website:http://www.eaobservato	ory.org/
	Position:Support Astronomer	
	Remarks:	
fall data is cor	rect, press on the "Register" button to finish registra	ation.
A generated pa	ssword and public key will be sent to h.parsons@	yjach.hawaii.edu.
	< Back Register	Cance











Please not this is a 'test' semester. If you have a real proposal you may upload it here for a trial but please save your own copy offline.



Applicante Instific		JC		oosal			PHelp Index International Community: Community Category:regular Semester:TEST01
Applicants	Callon Observin	ng neq	Additional issues				7 Help
Active Participant	Contact Author	PI	Name	Affiliation	Country	Email	Potential Observer
yes	۲	۲	Dr Harriet Parsons	EAO	USA	h.parsons@jach.hawaii.edu	
Add applicant	inue 🗖 Save a	and Pr	eviev 🕶 Save and Ex	tit [⊠] Save and Subm	iit		d uit without savir





	? Help Index
JCMT Proposal	International Community: Community Category:regular Semester:TEST01
Applicants Justification Observing Request Additional issues	
	? Help
You must specify targets/observation setup here.	
Requested time per weather grade (hours) : * New in Semaster 10B:	
Calibrations will no longer be charged to science projects. Your requested times should not include them.	
For exceptions and further info. see Call for Proposals http://www.jach.hawaii.edu/JCMT/observing/calls/	
total time specified for targets in list: 0 hours	
1) Very dry: 2) Dry: 3) Medium: 4) Wet:	5) Very Wet:
Indicate time per receiver (hours) : *	
A-Band: B-Band RxW: B-Band HARP: D-Band: SCUBA-2:	OTHER:
Ancillary instrumentation : SCUBA-2 polarimeter SCUBA-2 FTS	
Flexible scheduling? : • Ves O No	
overall scheduling requirements :	
overall scheduling preferences :	
Save and Continue Save and Preview	√ Quit without sav

	d M	JCMT Proposal	PHelp Index International Community: Community Category:regular Semester:TEST01
Applicants	Justification	Observing Request Additional issues	
			2 Help
		Information about all Students involved :	
		Add New Student	
		Are there linked proposals submitted to this TAC? : O Yes No	
		Are there linked proposals submitted to other TACs? : O Yes No	
		Are there relevant previous allocations?	
		The there relevant previous aneodations O Yes I No	57
		Additional Remarks :	
Save an	nd Continue	Save and Previev Save and Exit	d quit without savin



Parsons

No code

EMPTY

Abstract

EMPTY

Requested time per weather grade (hours)

Very dry	Dry	Medium	Wet	Very wet
NOT SPECIFIED				

Requested time per receiver (hours)

A-Band	B-Band RxW	B-Band HARP	D-Band	SCUBA-2	OTHER
NOT	NOT	NOT	NOT	NOT	NOT
SPECIFIED	SPECIFIED	SPECIFIED	SPECIFIED	SPECIFIED	SPECIFIED

Parsons

EMPTY

No code

Applicants

Name		Affiliation	Email		Country	Potential
Dr Harriet Parso	ins	EAO	h.parsons@jack	n.hawaii.edu	USA	Pi
Contact Aut	hor					
Title	Dr		Institute	EAO		
Name	Harriet Parsons		Department			
Email	h.parsons@jach.	hawaii.edu	Address	660 N Aoh	loku Place	
Phone(first)	808		Zipcode	96720		
Phone(second)		City	Hilo		
Fax			State	Hawaii		
			Country	USA		
Summary o	of observation:	S				
No details gi	iven					
Flexible sci	heduling: Yes					
	la - da d'ar a					

No overall scheduling requirements

No overall scheduling preferences

No PhD Students involved

Linked proposal submitted to this TAC: No

Linked proposal submitted to other TACs: No

Relevant previous Allocations: No

No additional remarks

Parsons

No code

No Scientific Justification File uploaded





Make it easy on the TAC and give them as much information as possible – always include the ITC or HITEC numbers you specifically used!

