BLAST-TNG Information for Proposers

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Contents

Table 1: BLAST-TNG Instrument Overview

Telescope:	Temperature	240 K			
	Primary Mirror Effective Diameter	2.33 m			
Detectors:	Central wavelengths	**250**	**350**	**500**	**μm**
	Number of dual polarization pixels	900	463	230	
Beam:	FWHM	30	41	59	arc-seconds
	Time required to map 100 MJy/Str dust with $\sigma_p = 0.005$	17.8	6.4	0.9	hours/deg^2
	Field of view for each array	22 arc-minute diameter			
	Filter widths ($\lambda/\Delta\lambda$)	3			

1 Overview

BLAST-TNG, the rebuilt and upgraded Balloon-borne Large Aperture Sub-millimeter Telescope for Polarimetry (BLASTPol), is designed to observe the polarized thermal emission from interstellar dust (Galitzki et al., 2014). The data it collects will provide new insight into the properties of dust and the role of magnetic fields in the interstellar medium through a wide range of densities. BLAST-TNG will produce several-degree-scale polarimetric maps at sub-arcminute resolution, making simultaneous measurements in its 3 broad bands centered at 250, 350, and 500 μm. Like BLASTPol, BLAST-TNG will launch aboard a stratospheric balloon from Antarctica. The expected flight duration is 28 days.

The BLAST-TNG team is requesting shared risk proposals to fill ~25% of our scientific observing time for the upcoming flight. Assuming a 28-day flight this corresponds to approximately 140 hours of observing time. Basic properties of the BLAST-TNG instrument are given in Table 1.

This document is intended to be a reference for potentially interested observers, and will give basic information on the telescope, observing and calibration strategy, and relevant sensitivity and mapping speed numbers. The expected schedule for the shared risk proposal process is summarized in Table 2. Additional questions should be directed to the BLAST team at blastproposalquestions@northwestern.edu. Throughout the proposal process we plan to provide additional information and a list of frequently asked questions at our website.[1]

[1] http://sites.northwestern.edu/blast/information-for-observers/

Date	Description
2018-07-24	Call for shared risk proposals
2018-08-31	Notice of Intent Due
2018-09-21	Proposal Deadline
by 2018-11-01	Proposal Evaluations Released
2018-12	Launch of BLAST-TNG from McMurdo Station, Antarctica
2020	First-look maps released to shared-risk PIs
2021	Final Science-quality maps delivered to shared-risk PIs
Two years after final delivery of science quality maps to PIs	Shared-risk program data becomes public

Table 2: Schedule for the BLAST-TNG shared-risk observation program.

1.1 Shared-Risk Definition

Observations will only be carried out if warranted by the in-flight performance characteristics of BLAST-TNG, as determined by the BLAST-TNG team after launch. Observations, data reduction, and production of science-quality maps will be carried out by the BLAST-TNG team on a best effort basis and with the understanding that the members of the BLAST-TNG team will be co-authors on publications resulting from the observations.[2]

This call for proposals is open to researchers at any university or other scientific institution. There are no geographic restrictions. We do want all BLAST-TNG data to eventually become available to the public, so we will work with PIs of successful shared-risk proposals to make their raw maps publicly available two years after final science maps have been delivered.

The full BLAST-TNG instrument performance will only be determined after launch as it is impossible to simulate at-float loading and atmospheric transparency for ground instrument tests. In this document we have therefore tried to give conservative assumptions about the instrument performance. However, unanticipated problems could degrade telescope performance including:

- *Instrument Sensitivity:* Our detector arrays will be tested in the lab before

[2] A list of collaboration members can be found at http://sites.northwestern.edu/blast/collaborators/.

launch, however it is impossible to fully measure the instrument performance until the flight as the instrument loading will be completely different in the stratosphere. Accordingly, the instrument sensitivity numbers given in Section 2, are based off of observed noise levels in previous versions of the BLAST telescope, scaled for the increased number of detectors and larger collecting area of the new telescope, with some conservative estimates for polarization efficiency, fraction of working detectors and mapping efficiency.

- *Telescope Resolution:* In this document we quote the expected beam size based our our telescope optical model. However because the BLAST frequency bands are designed to operate in the upper stratosphere they are extremely sensitive to atmospheric emission from the ground. It is therefore not possible to measure the far-field response pattern before launch.

- *Flight Length:* The cryogenic hold time of BLAST-TNG should be >25 days. However it is possible that a key component of the science payload could fail, resulting in a shorter than anticipated science campaign. Accordingly we are reserving the first week of science time to observe BLAST-TNG reserved science targets during the upcoming flight (see Section 5). After one week of full operation we will begin observing shared-risk science programs. In addition, some targets (particularly in areas where $l > 340°$) will not be visible until mid-to-late January. Whether these objects can observed will depend on the telescope launch date and instrument performance over time.

- *Flight Trajectory:* As discussed in Section 4, the telescope will likely drift in latitude over the course of the flight altering which targets are observable. Proposed targets near the extrema of the visibility contours may become not observable, particularly if the telescope drifts many degrees in latitude towards the south.

2 BLAST-TNG Mapping Speed Estimates

In this section we provide methods to estimate the time required for BLAST-TNG to map a region of the sky down to a requested noise level. Proposals will be accepted for both linear polarization (Stokes parameters I, Q and U) and total intensity

(Stokes I only).

Values given in this document are a conservative estimate for the purposes of flight planning. We assume inefficiencies in mapping time, crosspolarization leakage, and detector malfunctions. These values are hardwired into the calculations. If you are planning on mapping regions smaller than 1×1 degree, we recommend that you contact us, as your estimates may need to incorporate additional mapping inefficiencies.

Note that all intensities referred to in this document are in the waveband of the calculation that they pertain to. Make sure to use the appropriate intensity for the band you are interested in. Also note that the bands do not all map at the same rate, so if you are interested obtaining detections of several bands make sure you use the longest mapping time for a region.

Any times calculated here include neither the additional time required for calibration observations, nor the time required for fridge and detector cycling. These will be automatically be scheduled by the BLAST-TNG team and do not need to be included in shared risk proposals.

2.1 Fractional Polarization

This section provides information about calculating the required integration times or minimum required total intensity on a map to obtain 1-σ error bars of size σ_p. Here p is the ratio of polarized flux $P = \sqrt{Q^2, + U^2}$ to the total dust intensity ($p = P/I$). As a rule of thumb, $3\sigma_p$ detections of p, will result in polarization angle errors of $< 10°$.

We define I_{req} as the minimum total intensity (in units of $\frac{MJy}{sr}$) in a BLAST band for which BLAST-TNG will obtain a given polarization uncertainty level, for a map of a specified area and total integration time:

$$I_{req} = I_{ref} \cdot \sqrt{\frac{a_{map}}{1deg^2}} \cdot \sqrt{\frac{5hours}{t}} \cdot \left(\frac{0.005}{\sigma_p}\right), \tag{1}$$

for a map of a specified area a_{map}, total integration time t. I_{ref} represents a reference intensity for a $1\,\mathrm{deg}^2$, 5 hour map with $\sigma_p = 0.005$ (or 0.5%).

We can instead write Equation 1 in terms of t_{req}, the total integration time (in hours) that must be spent in order to obtain a detection with the requisite error bars on a map of a given intensity, which scales as

$$t_{req} = t_{ref} \cdot \left(\frac{a_{map}}{1deg^2}\right) \cdot \left(\frac{0.005}{\sigma_p}\right)^2 \cdot \left(\frac{100\frac{MJy}{sr}}{I_{req}}\right)^2. \tag{2}$$

Here t_{ref} is the reference time required to map an area of 1 deg^2 such that 100 $\frac{MJy}{sr}$ intensity dust would have polarization error bars σ_p $=0.005$. $\frac{MJy}{sr}$. Table 3 gives I_{ref} and t_{ref} values for each of the three BLAST-TNG bands.

	$250\mu m$	$350\mu m$	$500\mu m$
I_{ref} $\frac{MJy}{sr}$	188.7	113.4	42.4
t_{ref} (hr)	17.8	6.4	0.9
Beam FWHM ($''$)	30	41	59

Table 3: Reference minimum intensities and integration time required for a BLAST-TNG map of 1deg^2 in size with polarization errors $\sigma_p = 0.005$ integrated for 5 hours. t_{ref} is the reference time required to map dust of 100 $\frac{MJy}{sr}$, with $\sigma_p = 0.005$. The diffraction limited beam FWHM for the telescope is also listed.

Note that I_{ref} and t_{ref} assume the maps require the full resolution of BLAST-TNG. For example if only FWHM=60$''$ resolution was required for 1 degree map of 100 $\frac{MJy}{sr}$ dust in the 250μm band with $\sigma_p = 0.005$, then $t_{req} = 17.8\,\text{hr} \times (25''/60'') = 7.4$ hours.

2.2 Polarized Intensity

We can also find the time it would take to map a region to a given σ_P (polarized intensity in units of $\frac{MJy}{sr}$). This is given by

$$t_{req} = t_{ref,P} \cdot \frac{a_{map}}{1deg^2} \cdot \left(\frac{0.35\frac{MJy}{sr}}{\sigma_P}\right)^2 \tag{3}$$

Where here, $t_{ref,P}$ is a slightly modified version of t_{ref} in Equation 2 in that it does not refer to a total intensity, and may be taken from the first row of Table 4.

	$250\mu m$	$350\mu m$	$500\mu m$
$t_{ref,P}$ (hours)	36.3	13.1	1.84
t_{req} (hours), a_{map} =1 deg^2, σ_P=1 $\frac{MJy}{sr}$	4.45	1.61	.225
t_{req} (hours), a_{map} =10 deg^2, σ_P=1 $\frac{MJy}{sr}$	44.5	16.1	2.25

Table 4: BLAST-TNG integration time required for obtain polarization intensity error bars (σ_P) using the scaling relation given in Equation 3.

2.3 Total Intensity

Finally, for observers not interested in polarimetry, but solely in total intensity mapping, the amount of time required to map a region to σ_I is

$$t_{req} = t_{ref,I} \cdot \left(\frac{a_{map}}{1deg^2} \right) \cdot \left(\frac{0.1 \frac{MJy}{sr}}{\sigma_I} \right)^2 \quad (4)$$

where σ_I is the 1-σ error in total dust intensity for a map and $t_{ref,I}$ is the reference time that it would take to map a 1 square degree region to an error in total intensity of 0.1 $\frac{MJy}{sr}$. Table 5 lists the reference times $t_{ref,I}$ for each BLAST-TNG band, as well as example t_{req} values for different map sizes and σ_I levels.

	$250\mu m$	$350\mu m$	$500\mu m$
$t_{ref,I}$ (hours)	55.6	20.1	2.81
t_{req} (hours), a_{map}=10deg^2, σ_I=0.3 $\frac{MJy}{sr}$	61.8	22.3	3.12
t_{req} (hours), a_{map}=20deg^2, σ_I=0.5 $\frac{MJy}{sr}$	44.8	16.1	2.25

Table 5: BLAST-TNG integration time required for obtain total dust intensity error bars (σ_I) using the scaling relation given in Equation 4.

3 Map Sizes and Integration Times

3.1 BLAST Mapping Strategy

BLAST-TNG is a scanning experiment which observes simultaneously in three frequency bands centered at 250, 350, and 500 μm. The instrument field of view is approximately 22′ for each BLAST band. BLAST observes by executing raster scans

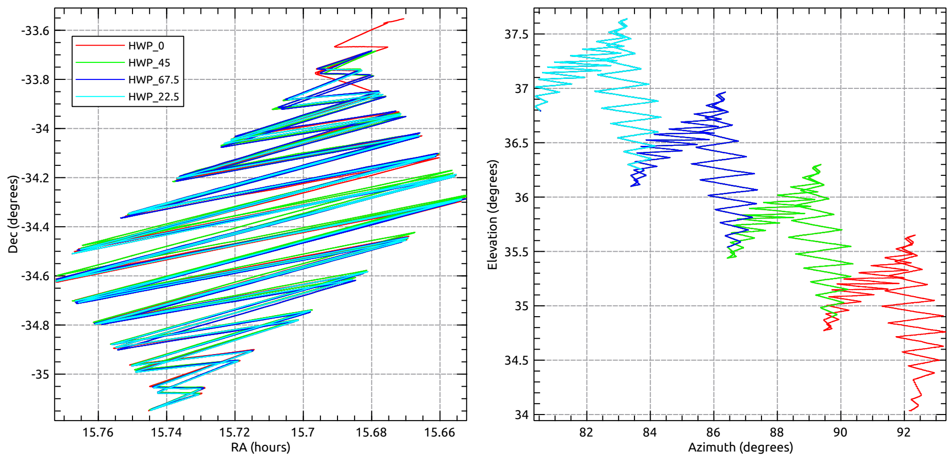

Figure 1: Trajectory for rasters scans of "quadrilateral" Lupus I scan from BLAST-Pol 2010 in right ascension/declination (left) and azimuth/elevation (right) (Matthews et al., 2014). Line colours correspond to each raster scan.

across the sky. These scans are primarily in azimuth, with a slow velocity drift in telescope elevation.

Each feed-horn fed detector pixel is sensitive to both the X and Y polarization components allowing measurement of a single Stokes Q or U parameter when crossing a source. Our focal plane arrays include detectors with sensitivity to the horizontal and vertical polarization components, as well as other detectors that measure polarization oriented 45° with respect to horizontal/vertical. This allows us to measure the I, Q, and U polarization parameters in a single raster map. Additional polarization modulation may be provided by a wide-band metal-mesh half-wave plate, which we expect to be stepped periodically to aid in the removal of systematic polarization errors.

The BLAST-TNG flight control software provides in flight telescope pointing to an accuracy of $\sim 1'$, while a more careful post-flight analysis will reconstruct the telescope orientation to $< 3''$.

3.2 Mapping Strategy Considerations for Observers

BLAST science maps are generally in one of two shapes:

- *quadrilateral scan:* This is the most flexible configuration. The telescope will attempt to scan a region whose boundaries are specified by four RA/Dec locations, giving the corners of a quadrilateral. An example quadrilateral scan from the BLASTPol 2010 flight is shown in Figure 1.

- *cap scan:* A circular shape scan defined by a target center and radius. Cap scans are generally used for smaller maps, for example a single galaxy.

In general we try to schedule observations to maximize parallactic angle coverage of each target, as this provides additional polarization modulation and better scan cross-linking.

The largest angular scale recoverable by BLAST-TNG is set by the low frequency noise properties of the MKIDS detectors. We are still characterizing the properties of the detector noise, but for flight planning purposes we expect that low frequency noise will become dominant at 0.5 Hz. For a typical azimuth scan speed of 0.5 degrees per second this means that the largest recoverable angular scale will be of order 1°. Smaller maps will necessitate a slower scan speed, and thus the largest recoverable angular scale will be smaller.

Because the BLAST-TNG detector array field of view is quite large ($\sim 22'$ diameter), BLAST cannot map regions smaller than 0.5 degrees in width. For small maps of less than $< 1^\circ$ across, there maybe additional penalties in terms of mapping efficiency (essentially the fraction of the observation time where the telescope is changing directions). We recommend that proposers contact the BLAST-TNG team if they are considering submitting a proposal to map a region of less than $\sim$1 degree in size.

Additionally because BLAST-TNG does not explicitly measure the zero-level of either total intensity or polarization, it is important to plan observations that include some off-target areas to provide contrast in the observations. As a rule of thumb, it is best to include a margin of $\sim$20% of the scan width around the region for which you would like to obtain detections. The value of I_{req} that should be used in Equations 1 and 2 should be referenced to the faintest regions of the sky area mapped.

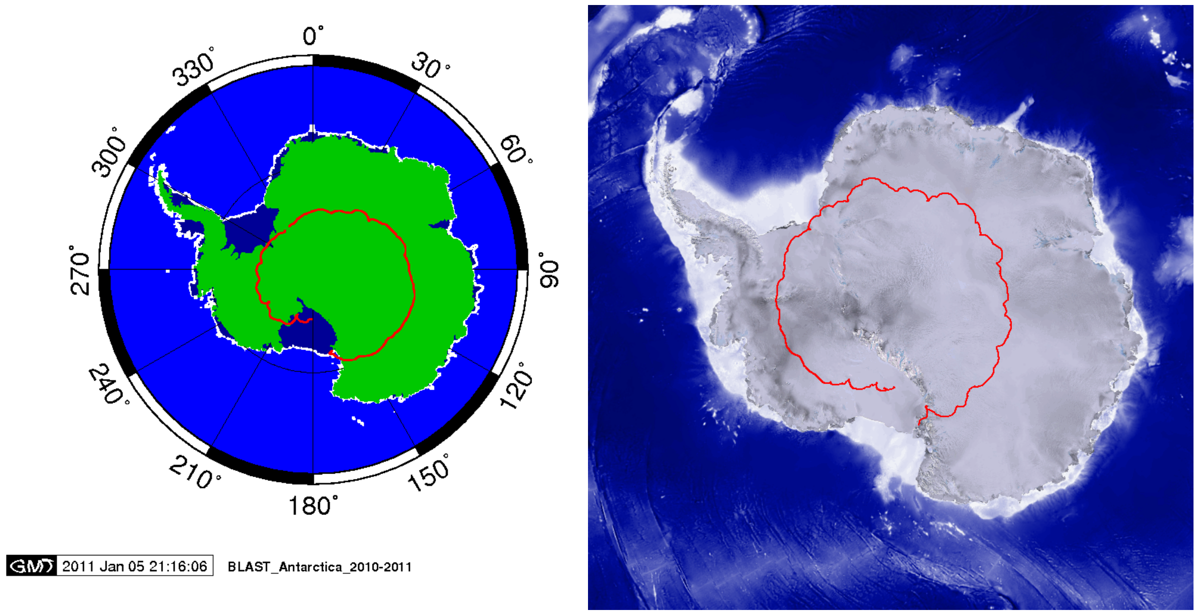

Figure 2: Flight paths for the BLASTPol 2010 (left) and 2012 (right) science campaigns. For both flights the telescope was launched in late December from the NASA Long Duration Balloon Facility near McMurdo Station, Antarctica and rose to a float altitude of ~38 km, where the stratospheric winds pushed the balloon around the continent. The flights were terminated over the Ross Ice Shelf after 9.5 days for the 2010 flight and 16 days for the 2012 flight. The flight time for BLAST-TNG is expected to be >25 days.

4 BLAST-TNG Expected Visibility

BLAST-TNG operates during the Antarctic summer, so the sun is always above the horizon. Accordingly our visibility limits are set by the need to avoid incident solar radiation on either the primary or secondary mirrors. The allowed telescope elevation range is constrained to 19 to 54.5°. Azimuth limits are relative to the location of the sun. Due to the construction of an asymmetric baffle on the starboard side of the telescope inner frame this azimuth limit relative to the sun is approximately 180 to 45°, where 180° implies that the sun is directly behind the telescope and 0° would imply the telescope is pointed towards the sun.[3]

BLAST-TNG will launch from NASA's Long Duration Balloon Facility near Mc-

[3]Note that azimuth increases as the telescope moves to the right.

Murdo Station Antarctica (latitude -77.85°, longitude 166.67 °). Once at float altitudes, the stratospheric circumpolar vortex winds will cause the telescope to drift in roughly circular trajectory around Antarctica. The telescope will also likely drift up to 10 degrees in latitude, which may change whether some targets are visible. Trajectories for the predecessor BLASTPol telescope are shown in Figure 2.

Figures 3 and 4, show rough visibility plots assuming the telescope is at a latitude of -77.5 degrees (approximately equal to the latitude of the launch location) for December 18th 2018 and January 18th 2019 UTC. Note that the region of the sky visible to BLAST-TNG shifts more towards the Galactic Center later in the flight. The visibility contours indicate the approximate number of hours that the source is observable on a given day, but in practice the visibility constraints are slightly more stringent than indicated in these plots: the entire map area must be visible for >1 hour per day over a latitude range 4° either north or south of the telescope location.

As a general rule of thumb if the target is within the 5 hours/day contour it should be observable. If a proposer has a region of interest that is between the 1 and 5 hours/day contour lines, they should contact the BLAST-TNG team at blast-proposalquestions@northwestern.edu. Please send us the central coordinates of the potential target and we will check whether the region is likely to be visible.

Targets on the right-most region of Figure 4 (near $l = 0$) will only become visible in mid to late January, and will not be observable if we launch in mid-December. Again, we recommend that proposers interested in observing targets near $l = 0°$ or with $l > 0°$ contact the BLAST-TNG team.

5 Reserved Objects List

Our BLAST-TNG instrument and scientific planning team has developed a list of maps that we plan to observe in the ∼75% of the time not allocated to shared-risk science. These observations are listed in Table 6. Shared-risk proposers may not propose to observe targets within these areas unless their particular science goal requires much better sensitivity or more sky coverage.

It should be noted however that polarization maps made from the reserved objects list will be made publicly available to the astronomy community within a year after first look papers are published by the BLAST-TNG team.

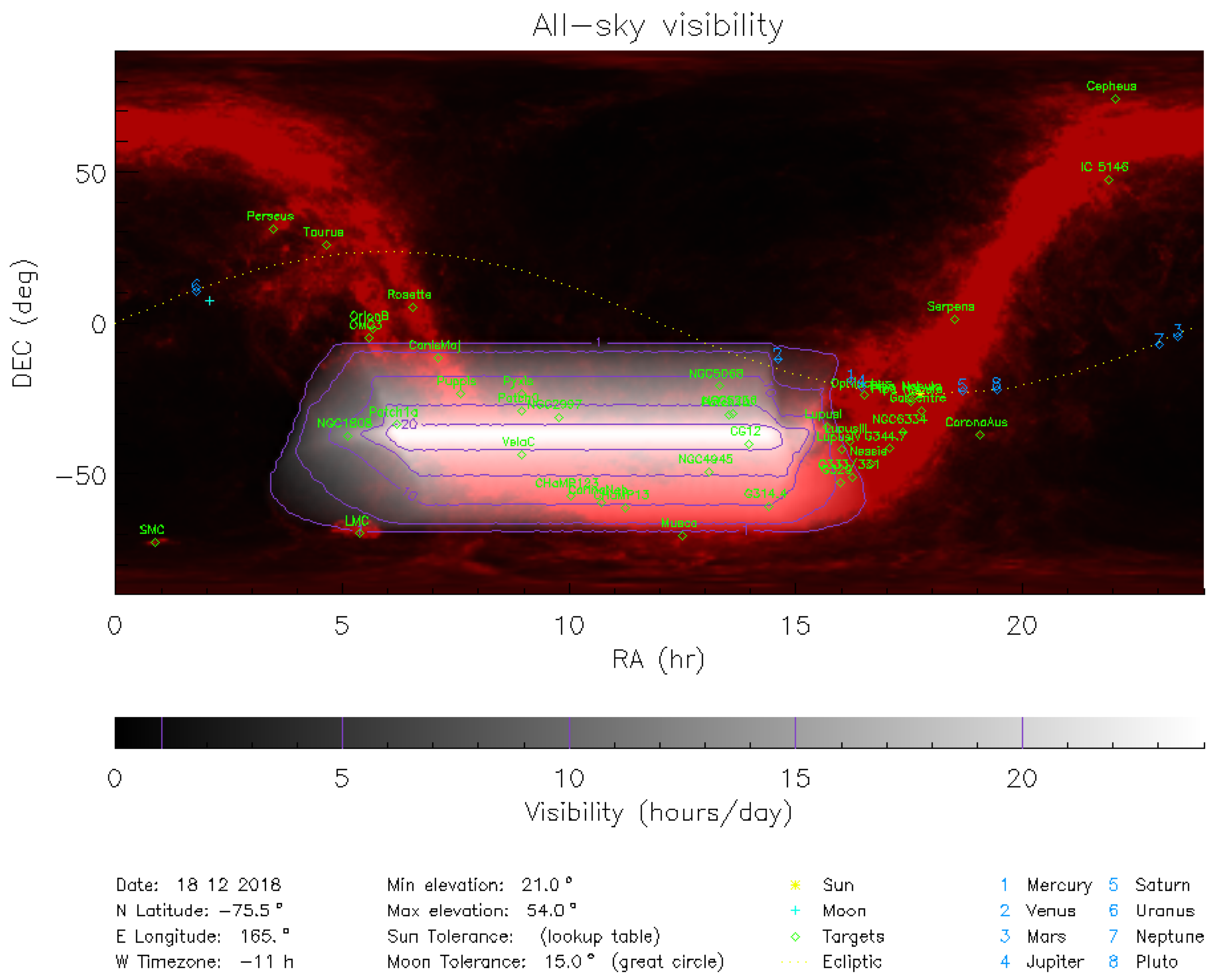

Figure 3: Expected visibility for BLAST-TNG on December 18th 2018 at a latitude of -77.5° (approximately the same as McMurdo Station). The visibility gives a rough estimate of the total number of hours that each map pixel is visible in a 24 hour period. In practice all parts of the target area need to be visible for at least one hour per day, and need to remain visible even if the telescope drifts north or south by several degrees before an observation can be completed. The background image shows the Galactic Plane dust distribution from the SFD models (Schlegel et al., 1998).

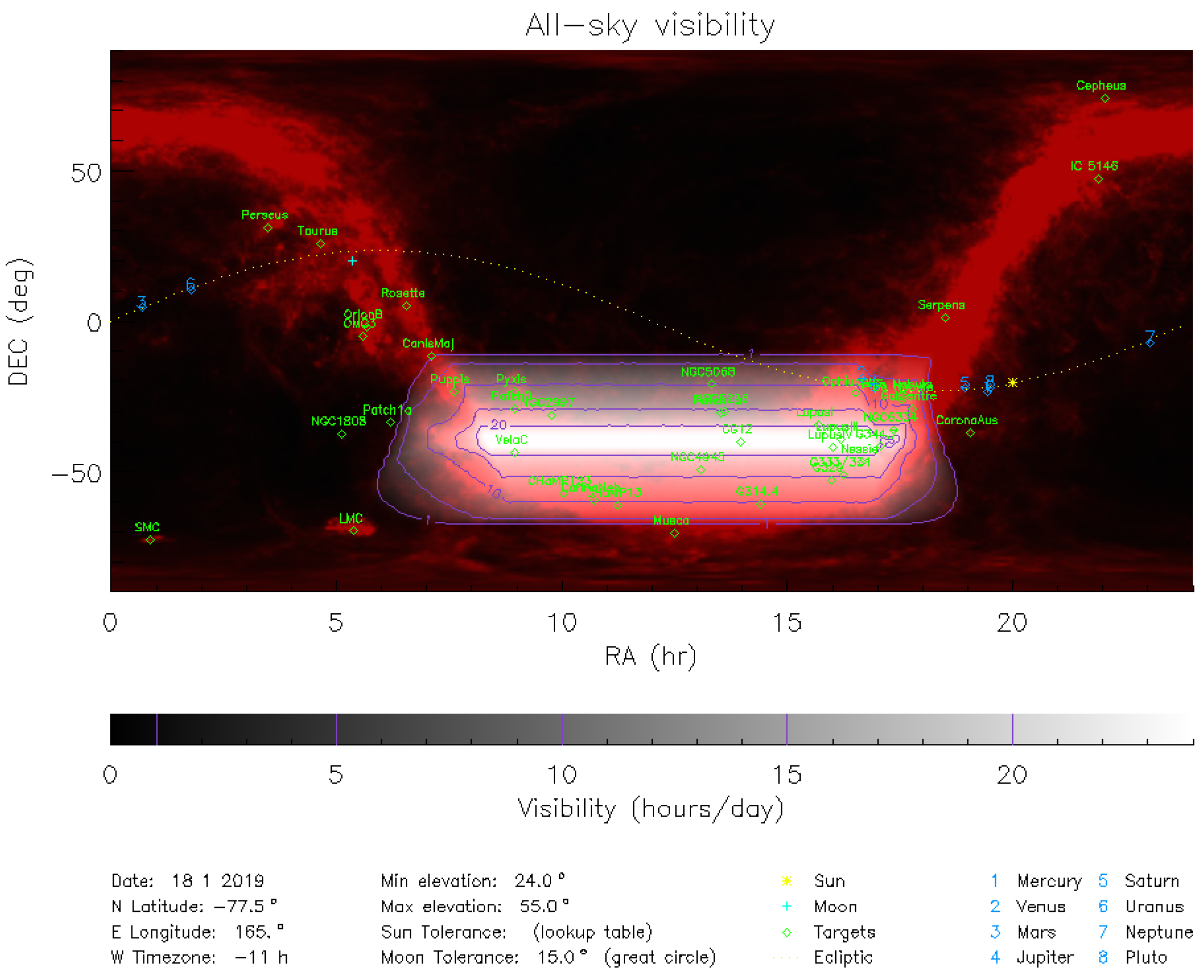

Figure 4: Expected visibility for BLAST-TNG on January 18th 2019 at a latitude of -77.5° (approximately the same as McMurdo Station) similar to Figure 3.

Map Target	Science Type	RA Cent. (J2000)	Dec Cent. (J2000)	Area deg^2	t_{obs} hrs	dist. kpc	Map Type	RA$_{q1}$ Dec$_{q1}$	RA$_{q2}$ Dec$_{q2}$	RA$_{q3}$ Dec$_{q3}$	RA$_{q4}$ Dec$_{q4}$
Vela	Nearby MCs	8:57:36	-43:38:02	10	70	0.7	quad	09:09:19 -44:59:30	09:04:38 -41:34:56	08:48:43 -42:12:45	08:52 31 -45:39:45
Lupus I	Nearby MCs	15:41:05	-34:19:12	5.1	60	0.15	quad	15:49:04 -34:27:37	15:40:20 -32:36:29	15:33:25 -33:59:04	15:42:07 -35:53:55
Lupus III	Nearby MCs	16:10:40	-39:06:47	1.4	15	0.15	quad	16:14:43 -38:57:03	16:11:30 -38:15:39	16:05:52 -39:14:13	16:09:07 -39:55:30
Lupus IV	Nearby MCs	16:00:52	-42:03:19	2.2	25	0.15	quad	16:07:22 -41:55:58	16:04:00 -41:05:52	15:54:27 -42:10:08	15:58:24 -43:01:40
Ophiuchus	Nearby MCs	16:30:52	-24:06:24	9.1	60	0.15	quad	16:43:32 -23:52:23	16:21:17 -22:38:20	16:19:01 -24:36:25	16:41:29 -25:51:53
Pipe Nebula	Nearby MCs	17:31:44	-25:58:13	3.2	20	0.15	quad	17:38:29 -25:27:00	17:34:29 -24:41:24	17:25:12 -26:36:00	17:28:26 -27:24:36
Vela Wide	Nearby MCs	8:54:23	-43:41:18	30	15	0.7	quad	08:55:29 -48:11:37	09:19:51 -44:26:50	08:53:39 -39:03:32	08:30:50 -42:24:36
Lupus Wide	Nearby MCs	15:39:25	-34:47:26	30	15	0.15	cap	r=3.1			
Ophiuchus Wide	Nearby MCs	16:19:26	-23:03:34	30	15	0.15	cap	r=3.1			
CHaMP 1,2 and 3	GMCs	10:01:41	-57:20:49	4.0	7.0	3	quad	10:12:00 -57:07:10	10:00:16 -55:56:38	10:03:12 -58:44:38	09:51:15 -57:31:02
GMC 329.0	GMCs	15:58:46	-52:55:18	8.2	5.5	3.9	quad	16:00:43 -50:54:26	15:45:15 -52:51:40	16:12:16 -52:53:09	15:56:37 -54:56:02
Nessie	IRDC	16:40:02	-46:37:22	7.0	6.0	3.1	quad	16:39:58 -44:45:02	16:29:09 -46:48:09	16:50:49 -46:22:44	16:40:05 -48:29:42
NGC 6334	GMCs	17:21:45	-36:11:51	4.1	4.0	1.8	quad	17:18:12 -34:47:53	17:14:00 -35:59:41	17:29:31 -36:22:17	17:25:26 -37:35:35
G314.4	GMCs	14:24:25	-60:52:40	4.0	4.0	7.84	quad	14:29:04 -59:34:57	14:14:03 -60:15:53	14:35:13 -61:26:02	14:19:26 -62:09:26
GMC 344.7	GMCs	17:03:20	-41:39:36	11	4.0	2.78	quad	17:04:00 -39:13:25	16:50:45 -42:22:05	17:15:36 -40:52:05	17:02:36 -44:05:45
G331 and G333	GMCs	16:15:29	-51:09:32	7.6	5.0	5.2	quad	16:11:12 -49:18:22	16:03:11 -50:28:26	16:27:22 -51:55:02	16:19:19 -53:09:13
Carina Nebula	GMCs	10:42:48	-59:35:08	4.0	6.0	2.5	quad	10:53:22 -59:09:20	10:39:42 -58:13:57	10:46:08 -60:56:28	10:31:58 -59:58:08
CHaMP 13	GMCs	11:13:30	-61:09:02	4.0	6.0	3.33	quad	11:24:06 -60:33:48	11:09:04 -59:50:50	11:18:22 -62:26:36	11:02:35 -61:41:03
Pyxis	Diffuse ISM	08:57:09	-23:34:38	25	50	0.4	quad	9:12:32 -23:53:40	8:58:45 -20:04:20	8:41:54 -23:09:10	8:55:28 -27:05:12
NGC 5236	Ext. Galaxy	13:37:01	-29:51:57	0.5	7	–	cap				
NGC 4945	Ext. Galaxy	13:05:27	-49:28:04	0.5	7	–	cap				
NGC 2997	Ext. Galaxy	09:45:39	-31:11:28	0.5	7	–	cap				
NGC 5068	Ext. Galaxy	13:18:55	-21:02:21	0.5	7	–	cap				
NGC 1808	Ext. Galaxy	05:07:42	-37:30:47	0.5	7	–	cap				
Patch 0	CMB Foreground	08:57:17	-29:03:51	25	96	–	quad				
Patch 1a	CMB Foreground	06:11:59	-33:43:33	4	48	–	quad				
Patch 1b	CMB Foreground	13:31:23	-30:38:08	4	48	–	quad				

Table 6: Reserved Objects List for the upcoming BLAST-TNG flight. Shared-risk proposers may not propose to observe targets within these areas unless their particular science goal requires much better sensitivity or more sky coverage. Any maps made of these targets will be made publicly available within a year after first look papers are published. We indicate the map size and in the case of quadrilateral maps the corners of the region that will be observed (if no corner coordinates are given then the region is a square oriented parallel to the Galactic coordinate system). Cap scans indicate circular scan areas.

6 Proposal Specifications and Deadlines

We request that potentially interested teams send us a notice of intent (NOI) by August 31st 2018. This should include short (one or two sentences) description of the science goal, as well as a list of the names and institutions of key investigators. The NOI requirement is primarily so that the BLAST-TNG team can estimate both how many proposals are likely to be received, and get an idea of the breadth of science topics likely to be addressed in the proposals. We plan to have a panel of non-BLAST team members evaluate the science cases of the shared risk proposals, and the information from the NOIs will guide us in determining the scientific expertise needed for such a panel. *PIs who submitted a NOI for the 2017 BLAST-TNG call for proposals will be asked to confirm whether they still wish to submit a proposal for the 2018 call.*

The deadline for proposals is September 21st 2018. In total we request that proposals be no more than two 8.5 by 11 pages in length with an additional page (if needed) for figures and references.

The proposal should include:

- A short abstract (<300 words).
- A Scientific Justification section describing the scientific objectives of the observations and how BLAST-TNG observations would be used to achieve these objectives.
- Requested Observation Details: This section should clearly list the target areas requested, required total observing time for each area[4], and required uncertainty levels. If your science case requires smoothing to a lower resolution please also indicate this here.

Notices of Intent and submitted proposals should be emailed to: blastsubmit@northwestern.edu

Once evaluations of the proposals are completed we will work with the successful teams to set the BLAST-TNG mapping parameters in our scheduling software.

[4]Note that proposers are not expected to add any overhead time for calibration observations.

Revision History

Revision	Date	Author(s)	Description
1.0	04.04.17	LMF, IL	Initial Call for Proposals (2017).
2.0	06.08.17	LMF	Updated to reflect BLAST-TNG deployment delay.
3.0	07.23.18	LMF	Updated to reflect BLAST-TNG 2018 timeline and instrument performance information.

References

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