COMM 188: Effect of sky substructure on bandpass stability analysis

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1 Introduction

We investigate the short-term bandpass stability of MeerKAT. In our investigation over the past few months, which include the AR1.5 commissioning fields, we found baseline-dependent ripples in the calibrated data. The variations are additionally time- and frequency-dependent. Due to the MeerKAT widefield sensitivity it is likely that these variations are predominantly driven by substructure around the calibrator source itself, falling well-within the antenna primary beam at L-Band. To gauge whether the instrument meets design requirements it is necessary to first create a more detailed model of the calibrator field and its substructure. After modelling, gain variations before and after taking field substructure into account during calibration are compared to achieve a better estimate of the system stability.

2 Minimum System Design Requirements

[Kussel, 2015] establishes the following L-band digitizer design requirements relevant to discussion:

1. RMS gain amplitude stability of $\leq 0.7\%$ over 20 minutes per 1 MHz channel
2. RMS gain phase stability of $\leq 1.6^\circ$ over 20 minutes per 1 MHz channel
3. Gain flatness across the pass-band $\leq$5 dB
4. Spectral bandpass stability $<$ -43 dB over 8 hours

Testing the last item is out of scope at the moment due to the lack of a long uncalibrated observation of a calibrator. In this report, we focus on short term gain stability.

3 Definition of Problem

3.1 Bandpass and gain calibration

Gain calibration attempts to solve for the time- and frequency-variable gains assuming an additive zero-mean Gaussian noise, ϵ. If the gains are direction-independent, the visibility observed by antennas p and q is

$$V_{\text{obs}}(u(t), v(t)) \approx g_p(t,\nu) g_q^*(t,\nu) V_{\text{model}}(u(t), v(t), \nu) + \epsilon \tag{1}$$

Here $V_{\rm model}$ is the Fourier transform of the local sky model, $M_{\rm model}$, as seen through the primary beams of the antennae, and g_p, g_q terms are (complex) per-antenna gains. Under the assumption that the system bandpass gains are stable over extended periods of time, the gains can be separated into time- and frequency-variable functions and solved for in a classical least squares fashion at regular time- and frequency-intervals by combining all baselines observed within these intervals and minimizing χ^2 (the real and imaginary components can be treated separately to keep things simple). Here $([i,j],[k,l])$ are arbitrary time- and frequency-intervals respectively:

$$\chi^2(i \leq t \leq j, k \leq \nu \leq l) = \sum_{u,v=bl(t,\nu)} |V_{\rm obs}(u,v,\nu) - g_p(\nu)g_q^*(\nu)g_p(t)g_q^*(t)V_{\rm model}(u,v,\nu)|^2 \tag{2}$$

This process assumes that the input sky model is a good approximation of the true sky, $M_{\rm true}$. Any real emission that is not included in the model will, to some extent, be absorbed into these time and frequency gains. The exact extent to which they are absorbed depends on how frequently solutions are computed: time and frequency variations will be washed out by the average taken in Equation 2.

Nonetheless, if we want to solve for short-term variations (first-order approximations of atmospheric gains, etc.) any variations due to errors made with our model will not be washed out and will be included in these gain terms along with systematic and atmospheric errors. This will appear to cause gain instabilities which are in turn transferred onto any target fields, potentially causing so-called "ghost" artifact sources and dynamic range limitations. At present bandpass calibration ghosts are not well-understood and are subject to future investigation.

3.2 Effects of non-trivial fields on calibrator visibilities

Traditionally, secondary sources in the calibrator fields around the calibrator source that are at the $\leq\approx 5\%$ level of the calibrator, are ignored. As typical bandpass calibrators have L-band flux densities of some 10 Jy, the flux density of the secondary sources is likely to be in the 10s-of-mJy range. The only requirement is that the calibrator has to be unresolved. Ignoring substructure at such high levels can ultimately prove to be a limiting factor to the dynamic range achievable in deep spectral observations, where bandpass stability is key.

If we, for instance, made the mistake of assuming some (fictitious) calibrator field consists of only a single point-source, when there is in fact a second source next to it, the visibilities will contain ripples instead of a smooth curve over the passband. To see why, we simply consider the analytical expression of the Fourier transform of two unresolved point sources. One source is at phase centre, the other at some coordinate $(x_1, 0)$ on the celestial sphere, but well-within the primary beam of the antennae. The two sources have flux densities S_0 and S_1 Jy respectively:

$$\begin{aligned} V(u(t,\nu),v(t,\nu)) &= S_0 + S_1 e^{-2\pi i(ux_1)} \\ \implies |V(u(t,\nu),v(t,\nu))|^2 &= S_0^2 + S_1^2 + 2S_0^2S_1^2\cos(2\pi x_1 u(t,\nu)) \\ \implies \arg(V(u(t,\nu),v(t,\nu))) &\approx \tan^{-1}\left(\frac{S_1\sin(-2\pi x_1 u(t,\nu))}{S_0}\right) \ (S_0 \gg S_1) \end{aligned}$$

This periodic variation, the "ripple", is time- and frequency dependent. It has a period that increases with increasing baseline length and the source distance from phase centre. This ripple is real emission.

Calibration compares (the visibilities of) a true sky model with a real measurement and compensates for the difference as best as possible. If, however, the sky model is wrong, the differences propagate as calibration errors into the gains. In other words, assuming a single point source at the phase centre in the calibration process, while there are secondary sources present, will lead to ripples in the gain solution. This variation is undesirable, but will go away if the calibration is based on a local sky model including secondary sources.

Model-induced "false" gain instabilities may (or indeed prove not to) be the dominant cause behind variation in the bandpass gains currently seen by the commissioning team. This is the problem under investigation.

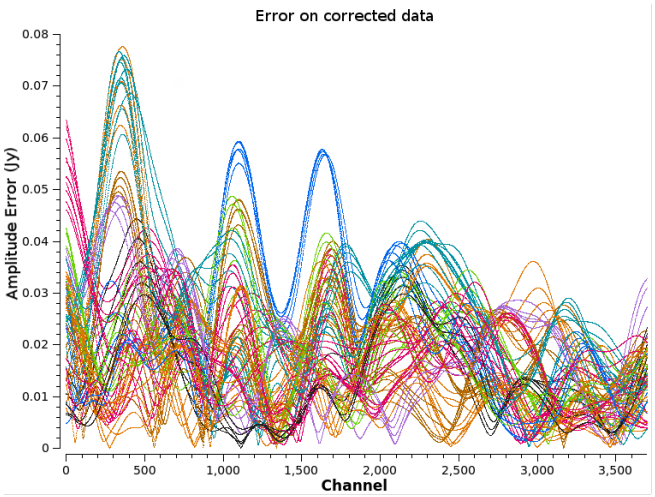


Figure 1: Predicted amplitude errors introduced to target field visibilities to which bandpass gain solutions are transferred. These solutions are computed for uv ranges up to $5k\lambda$. Colourised by baseline.

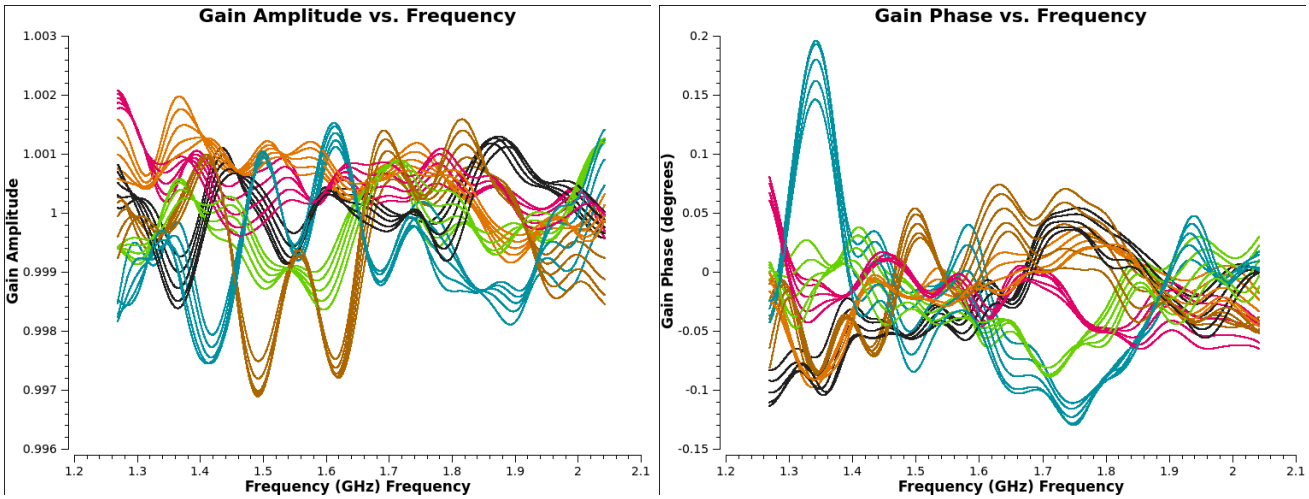


Figure 2: Predicted amplitude and phase variations introduced by neglecting field substructure. These solutions are computed for uv ranges up to $5k\lambda$. Solutions are colourised by antenna. Several solutions have been computed for this simulated scan, showing time variation within the gains.

3.3 Simulations

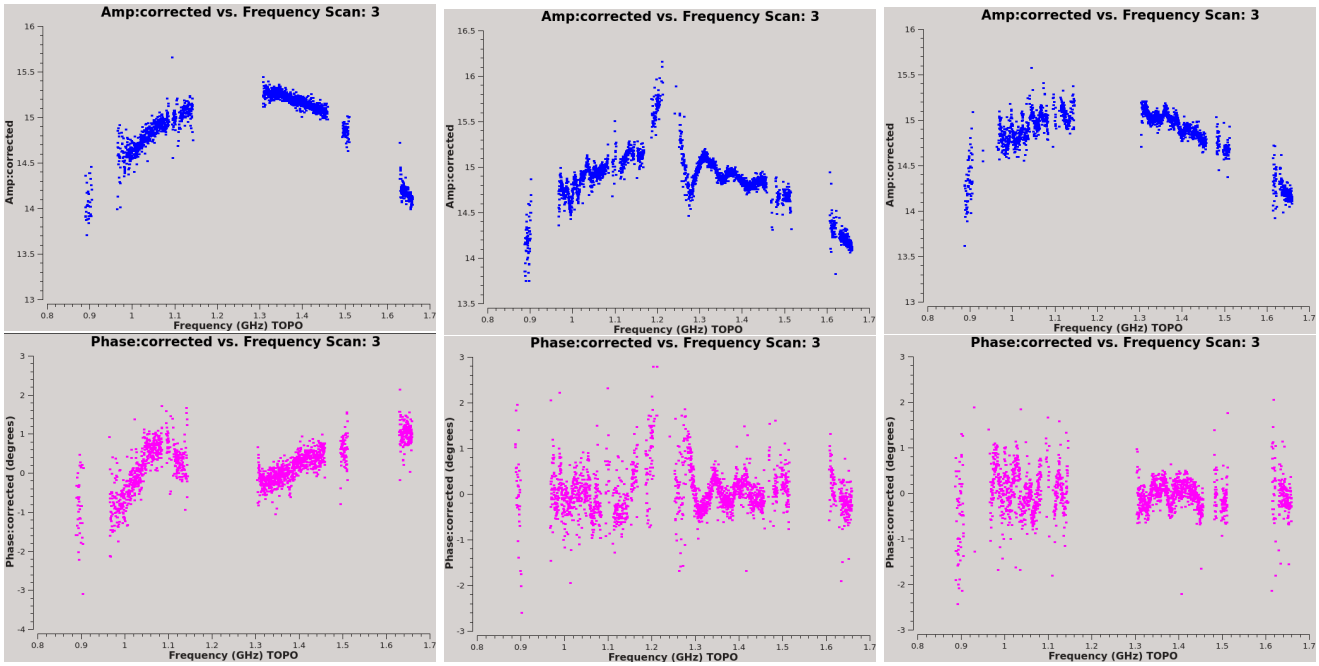
Since the sky around PKS 1934-638 is more complex than the toy example discussed above, it is best to simulate and visualize the rippling that is introduced by real emission.

Assuming an otherwise perfect instrument, observed data is simulated using a complete model of PKS 1934-638 (discussed in 4). Bandpass solutions are then computed using a model that ignores all sources aside from PKS 1934-638 itself. These solutions are computed at 64s intervals on a dataset with 8second integration intervals and 9 antennae in the same configuration as the 1498145355 observation.

The differences between corrected and observed data is computed to estimate the scale of variation introduced on corrected visibilities of fields to which they are transferred. These are shown in Figure 1

The variations induced on gains by neglecting substructure are shown in Figure 2 comparable to results previously obtained by Ian Heywood [1]. We note that these errors are well within requirements 1 through 3. However, neglecting field substructure for calibrator similar to PKS 1934-638 will result in a dynamic range limitation of $\approx 2:1000$ if there are no bright sources in the target field to correct these induced errors later on in the self-cal process.

[1] Private email conversation with Ian Heywood



(a) m000 & m006 **(b)** m008 & m061 **(c)** m061 & m062

Figure 3: Corrected data of scan on PKS 1934-638 at increasing baseline length. Ripples in corrected calibrator visibilities as generally seen in observations. Here a complete model is used during calibration. If there were no sources aside from 1934-638 the relatively smooth curve (corrected amplitude) seen on the short baseline - corresponding only to the curvature of PKS 1934-638 itself - should have been observed by the intermediate and long baselines as well. In order to induce a ripple on the shortest spacings the field substructure would have to be very bright, very extended and close to the calibrator. This is not the case with PKS 1934-638, although it has a few bright compact diffuse sources in close proximity.

3.4 Ripples on observed data

The simulations above illustrate the expected rippling introduced by source substructure on the observed. Figure 3 shows similar ripples on observed data (corrected using a reasonably complete model). We believe these ripples are real and must therefore be in the visibilities. To verify the goodness-of-fit of the model the predicted model visibilities need to be subtracted from the observed (corrected) visibilities. The residual visibilities are expected to be roughly 0-mean Gaussian noise. This will be evaluated in Section 4.4. We will investigate the differences in gains in Section 5 after a brief detour on how the model was derived, and its goodness-of-fit.

4 Calibrating Calibrators: PKS1934-638 Case Study

4.1 General considerations

We focus on PKS1934-638 in this report, since it is one of two primary calibrator fields commonly used during MeerKAT observation; the alternative is 0408-65. 3C286 can also be used, but its high declination makes it undesirable for MeerKAT. Figure 4 simulates the tracks of the 3 calibrators during a 24 hour period in the local horizon.

It was suggested that the self-calibration of PKS1934-638 be bootstrapped with a bandpass calibration using 3C286 in order to establish a common flux scale that can be tied to the VLA. There are, however, good reasons not to use it to bootstrap:

1. 3C286 is observed through a distant part of the atmosphere,
2. it is additionally very low on the horizon, and is therefore more prone to atmospheric effects as well as diffractional interference from local terrain- and ground-based reflections and RFI,

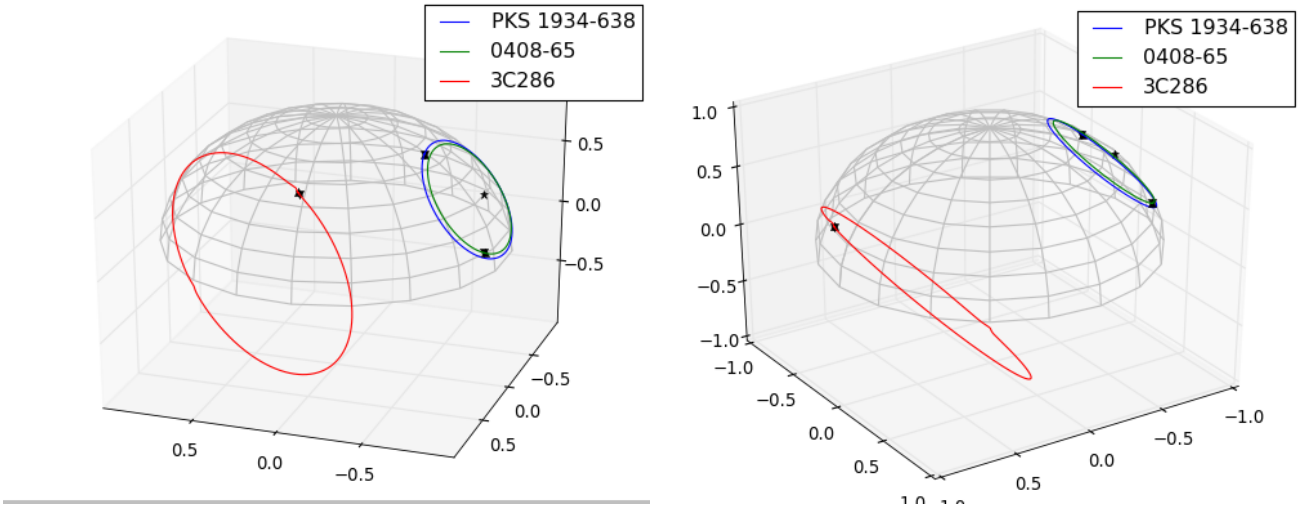


Figure 4: Tracks for the calibrators 0408-65, 1934-638 and 3C286 over a 24 hour period starting time 2017-6-10 00:00:00, ending time 2017-6-10 23:59:59. Because of its very high declination 3C286 is low on the horizon.

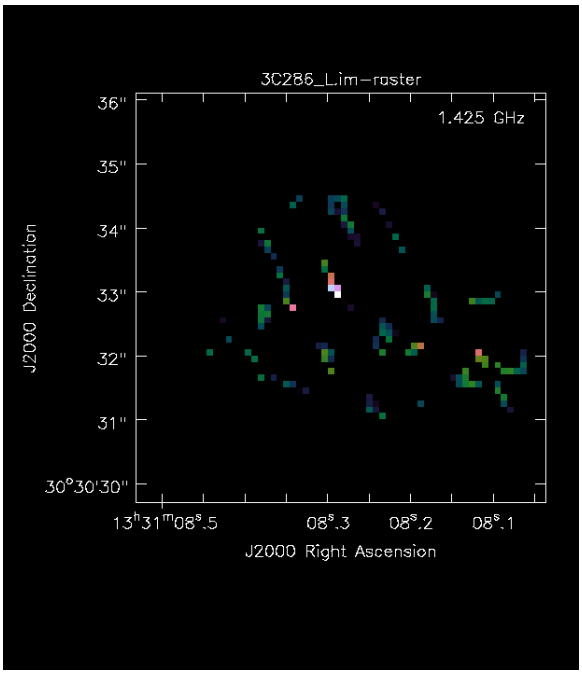


Figure 5: Clean component model of 3C286 part of the built in data in CASA. Note: only valid for 1.4GHz. Does not contain surrounding field.

3. the built in CASA v4.7 model (PB 2013) is just a spectral curvature fit. CASA has a clean component model image, but this is valid only at 1.4 GHz (Figure 5), and

4. neither spectral fit, nor the image model takes into account the substructure surrounding 3C286 in turn - bringing us full circle to the problem under investigation.

Instead we opt to bootstrap PKS1934-638 with the coefficients labeled as "Perley Butler standard 2010" in CASA v4.7 [2]. As far as we can tell the coefficients are not listed in [Perley and Butler, 2013], which contains information on calibrator stability over the past few decades. Although NRAO documentation is unclear where the built-in coefficients originate from, we presume their origin is in fact [Reynolds, 1994]. Importantly, PKS-1934-638 is unresolved at the interferometer resolution ($\approx$ 5"), see for instance [Tzioumis et al., 1998], therefore a point source starting model is adequate. PKS1934-638 is very stable [3] and thus the model dated back to 1994 is fit for use at the moment although an absolute flux calibration may need to be done with MeerKAT single dish observations in the future.

[2]Source labels used by observers vary and can be renamed to "1934-638" for CASA v4.7 to automatically pick up the source in the `SetJy` task
[3]Email discussion with Ian Heywood

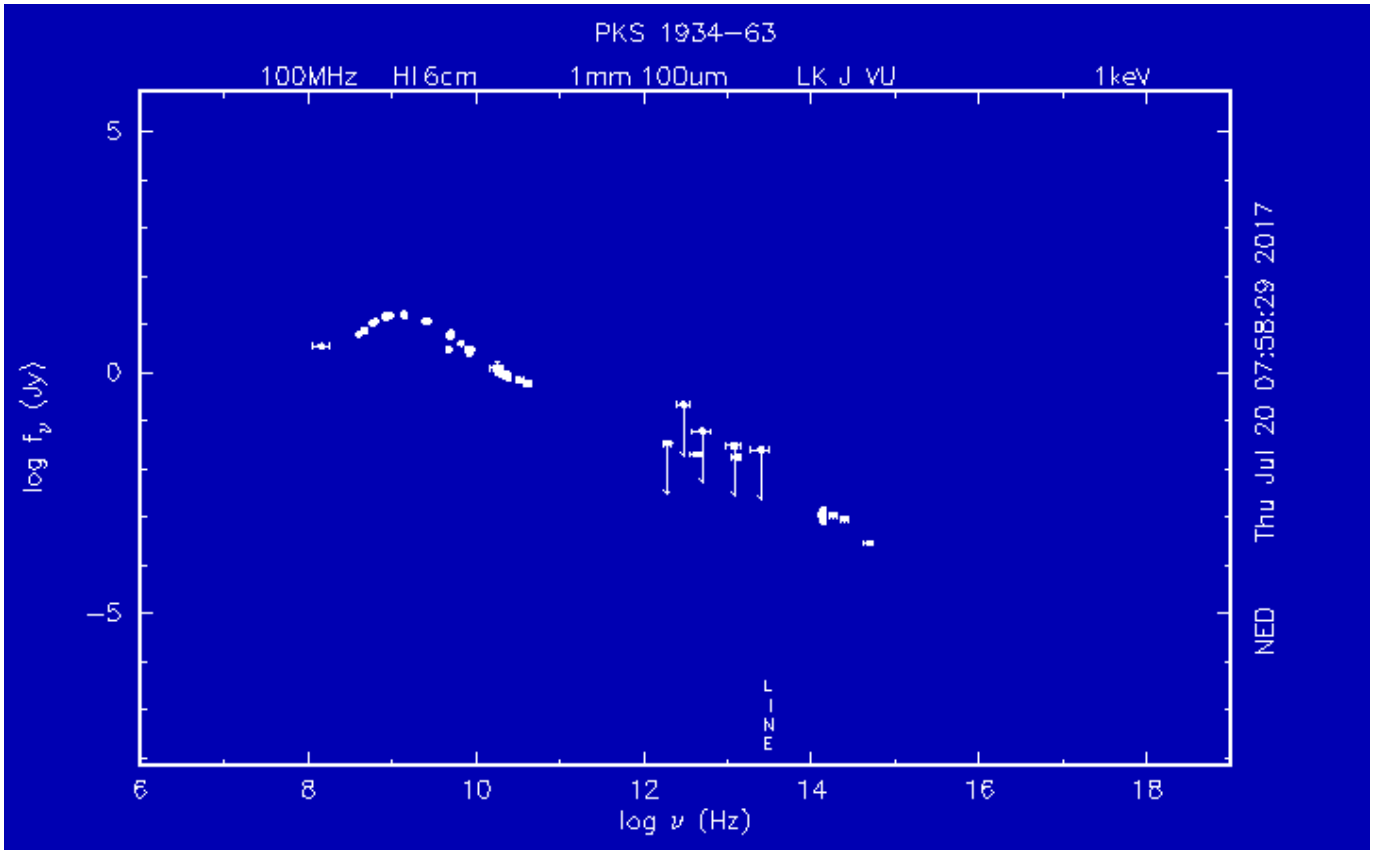


Figure 6: PKS1934-638 is GHz-peaked, making it suitable for use only in L-Band

1934-638 is GHz-peaked (see Figure 6). Assuming a flat-spectrum CLEAN component-based model will artificially induce a curve on the passband gains. This peaking also has implications for the planned UHF receivers, since the antenna effective field of view increases at lower frequencies, increasing the problem of substructure, while the primary calibrator simultaneously becomes dimmer. In the future it may be necessary to find another primary calibrator in addition to 0408-65 (not suffering from this problem) to do bandpass corrections in UHF.

4.2 Reduction process

The data reduction is partially done by hand in CASA v4.7 and AOFlagger, and partially using a set of self-calibration scripts which includes predicting a model model using the Meqtrees, CASA, AOFlagger, WSCLEAN, pyBDSM and an automasking task available through Stimela v0.2.9. It is roughly depicted in Figure 8, with individual steps adjusted as was necessary between consecutive rounds of self-calibration and flagging.

We chose to do our imaging at Briggs -2 (approximate uniform weighting), minimizing sensitivity by down-weighting all core baselines, but resulting in improved positional and resolution fidelity of the final model. The latter is preferred for phase calibration. The previous model created by Antony Foley was done at natural weighting and is accurate only near 1.3GHz, since it does not include the strong spectral curvature of PKS 1934-638. The positions of all 14 sources was, however, cross-checked against the SUMMS catalog. See Figure 7.

Note that neither the calibration nor the RFI flagging solutions provided by SDP are used in the reduction process we followed [4]. This is done to avoid unnecessarily overflagging the data (it is not necessary to apply a static RFI mask to all baselines lengths. The fringe rate of long baselines tend to wash out RFI much better than shorter baselines, allowing us to salvage some of the RFI-contaminated regions of L-Band and increase the sensitivity of the final image [5]. We also desire

[4]Although we had to resort to using data that has been phased up with existing calibrator models in order to self-calibrate and derive a new model. Final analysis was done in visibility space on a phased-down dataset

[5]Initial flags are only typically 13-14%, while second-pass flags were between 20-30% of total dataset. Blindly applying a static RFI mask instantaneously removes nearly half of the data

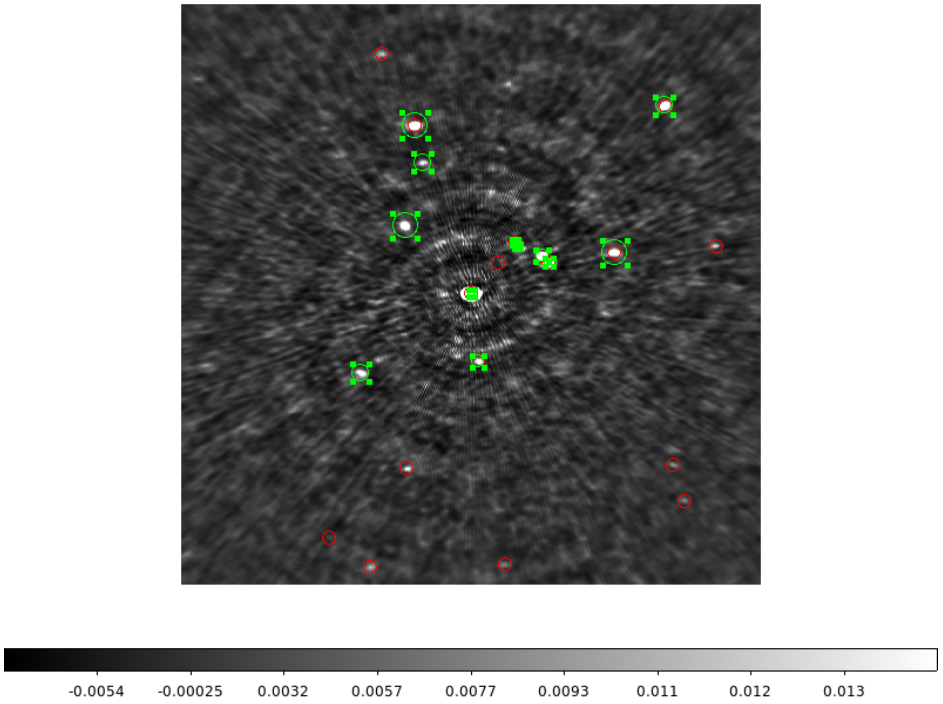


Figure 7: Previous model compared to SUMMS catalog. Positions are found to be within MeerKAT resolving accuracy. Model positions circled in green are fitted, positions highlighted in red are taken from SUMMS.

finer control over solution intervals for this experiment.

4.3 Challenges

In order to obtain desirable *uv*-coverage for imaging, as well as enough data to improve sensitivity it was necessary to reduce a total of 6 datasets, collected in the period April to July 2017: 1492094204, 1495000206, 1497470409, 1497661211, 1498145355, 1498338011. Some of these data had particular sets of challenges, although we mainly focus on the problems we faced with 1498145355. Overall the datasets cover the span 17:05:00 UTC to 07:28:00 UTC on PKS 1934-638, with scans earlier on other calibrator fields. The scans on 1934-638 are also interleaved with scans on other calibrators during this time range. Some of the datasets overlap in time, resulting in some redundancy.

It is noteworthy that data taken during the AR 1.5 commissioning was generally in better condition compared to recent observations, requiring flagging out only a handful of scans showing higher overall amplitude or phase scatter, by inspecting the initial rough bandpass-corrected data. During these reductions we flagged out m057 on a regular basis [6].

1498145355 was only phased-down and specifically observed for the purposes of this investigation. Only the first half of the observation was useful. We suspected that the correlator stopped phase tracking during the latter half of the observation for reasons unknown at the time of writing. This will be a subject of a second report headed by Nadeem. We split out all scans prior to the these errors as plotted in Figure 9.

1498145355 had 9 antennae in the observation: 'm008', 'm042', 'm002', 'm000', 'm061', 'm006', 'm049', 'm060' and 'm021'. However, after calibration only 'm000', 'm021', 'm049', 'm060' and 'm061' had any solutions. There were additionally either no solutions (or very sparse solutions) for frequencies less than 1.3GHz for any of the antennae before 20:26 UTC. The initial scans were already taken at 18:03 UTC and interleaved with scans on 3C286.

Of the four antennae flagged, m042 had high corrected amplitudes on scans of PKS1934-638 - but not for 3C286 - for

[6] It had bandpass gains significantly lower (between $\approx 0.3 - 0.6$) than the rest of the array (closer to unity, as desired). This was likely due to loose hardware on the receiver indexer which resulted in the focus shifting

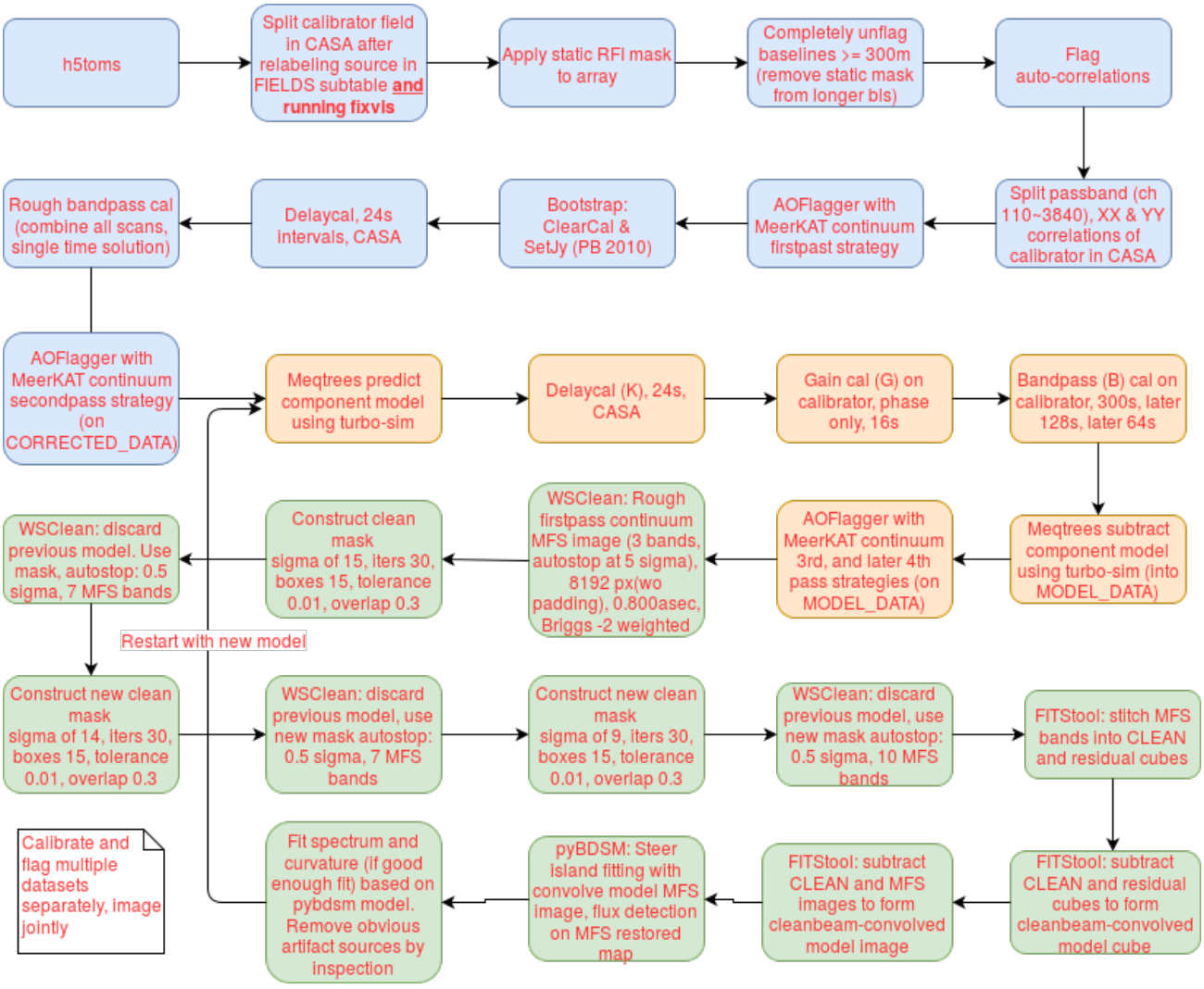


Figure 8: Reduction process roughly depicted. Cleaning and source fitting is steered towards real emission while sidelobes and calibration artifacts are avoided. Final model adjustments are made by inspection before self-calibration and further RFI flagging.

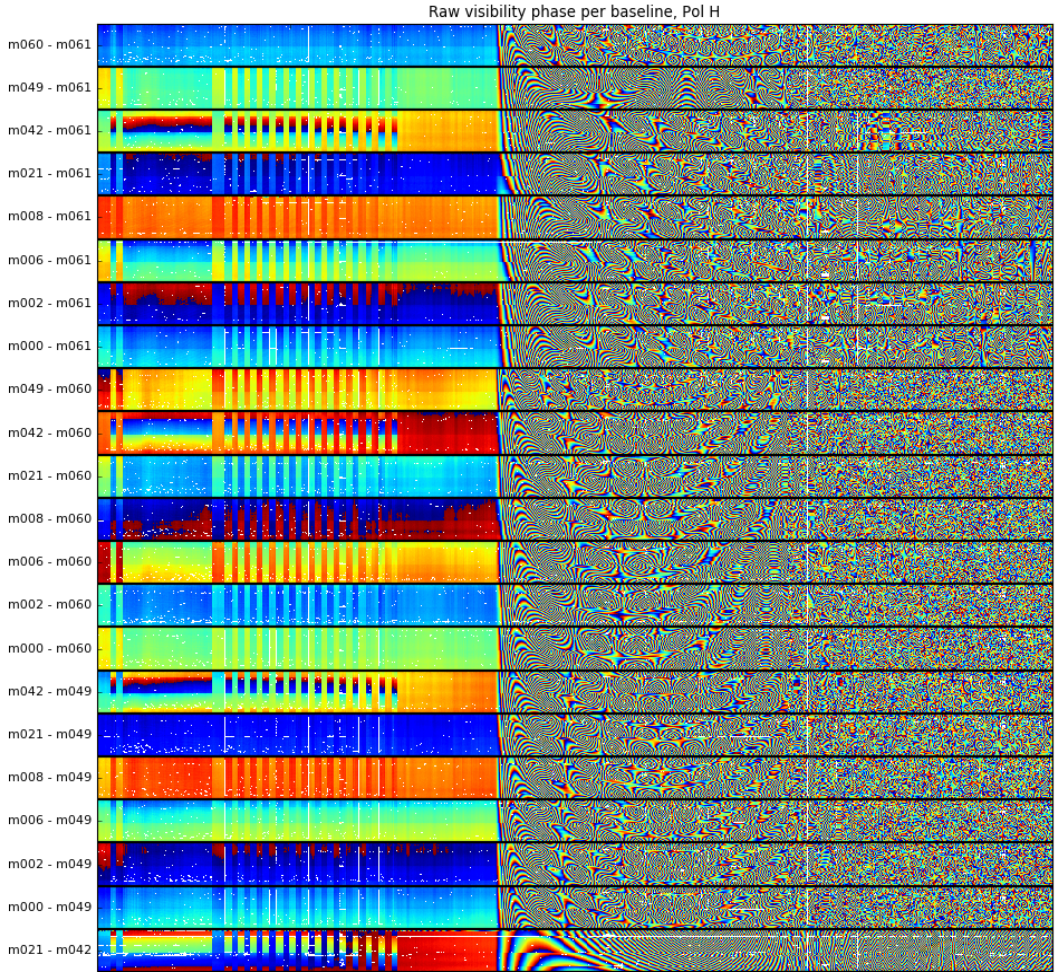
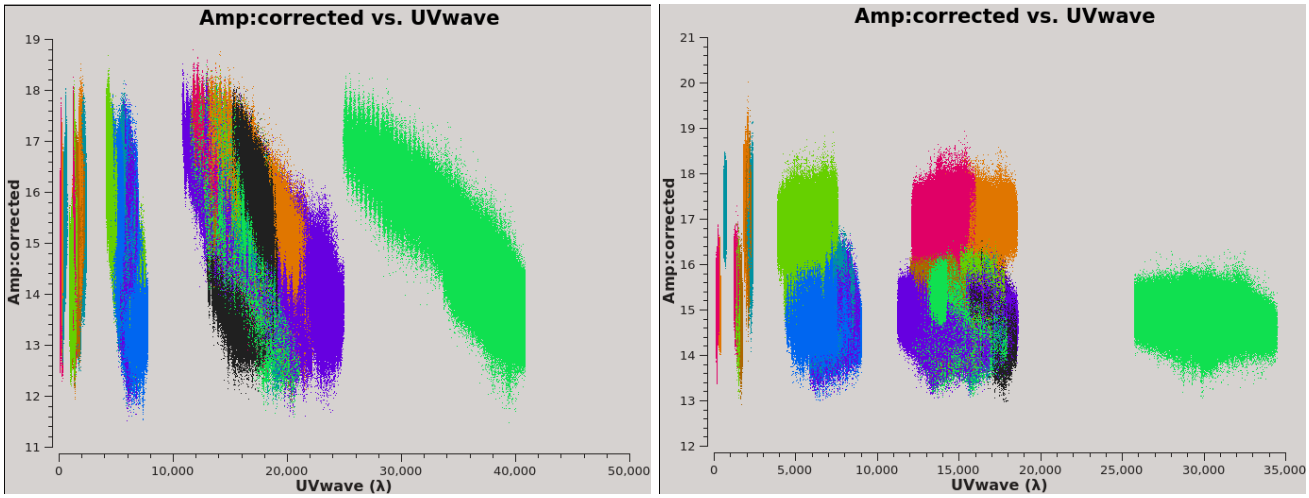


Figure 9: Extract of the phase plots automatically generated by SDP. 1498145355 is phased-down, therefore the large phase variations in the first half of the observation is too be expected. However it appears the correlator stopped phase tracking properly in the latter half of the observation. Only scans prior to the 20Ksec marker is split out for analysis.



(a) 3C286 **(b)** PKS 1934-638

Figure 10: Plots for corrected amplitude vs. $uv\lambda^{-1}$ of two calibrators contained in the first 2ksec of 1498145355, colourised by baseline. This is unexpected, because PKS 1934-638 is known to be unresolved at MeerKAT resolution, and there are no other sources close to 17 Jy at the centre frequency. The problem could not be attributed to any particular set of scans, so the antenna was completely flagged out before continuing analysis.

unknown reasons (we already removed corrected scans that had significant amplitude deviation and re-calibrated the data at this point). Figure 10 shows that this amplitude drift is broadband and unlikely to be RFI-related. It is worth noting that closure errors similar to this arose before and pose an operational risk to reduction pipelines currently in use within SDP, RARG, COMM and other stakeholders [7]

4.4 Results

Consecutive rounds of self-calibration and RFI flagging yielded good imaging results. Although there is residual RFI (especially prevalent around the the 900MHz and 1600MHz part of the band) the MFS maps do not significantly improve with more if regions around known RFI sources are flagged. In fact the RMS in the images increases. At this point imaging is stopped and a final model is fitted.

Current practice is to observe the primary calibrator for just under 5 minutes. At this integration time it is estimated that the instrument will pick up sources at the 0.62 mJy level in the visibilities, assuming the instrument will meet expected SEFD requirements upon completion of AR3. Although the SEFD is expected to vary over the passband between 578 - 424 Jy (900 - 1670 MHz), we choose the latter as best case to establish an estimate of minimum detectable source brightness, as per Equation 9-14 (setting the system efficiency tuning factor to unity) [Taylor et al., 1999]. It is widely-accepted practice to source find at the $\approx 5\sigma$ level. This sets an RMS requirement of roughly 0.1 mJy/beam on the image from which the model is created.

Using the MFS maps and spectral information contained within the cubes we fitted for position, shape (elliptical Gaussians), intensity at reference frequency of 1.300GHz and spectral curvature as defined by the following log-polynomial form[8]:

$$S(\nu) = S(\nu_0)\left(\frac{\nu}{\nu_0}\right)^{\alpha+\beta\ln(\nu/\nu_0)+\gamma\ln^2(\nu/\nu_0)+\delta\ln^3(\nu/\nu_0)} \tag{4}$$

This process yielded a new model containing over 500 components ensuring bright complex extended emission is modeled. The model is listed in Appendix A. There are primarily 3 patches of relatively bright extended emission close to the calibrator: 12', 14' and 16' away respectively. The brightest is 27mJy/beam (apparent) compared to 15.1J y/beam (apparent) of PKS

[7] System flags have been provisioned for, [Kussel, 2015]. Though this is yet to be realized in the processing chain.
[8] As used in both CASA and Meqtrees. Mind the numerous different conventions in the literature!

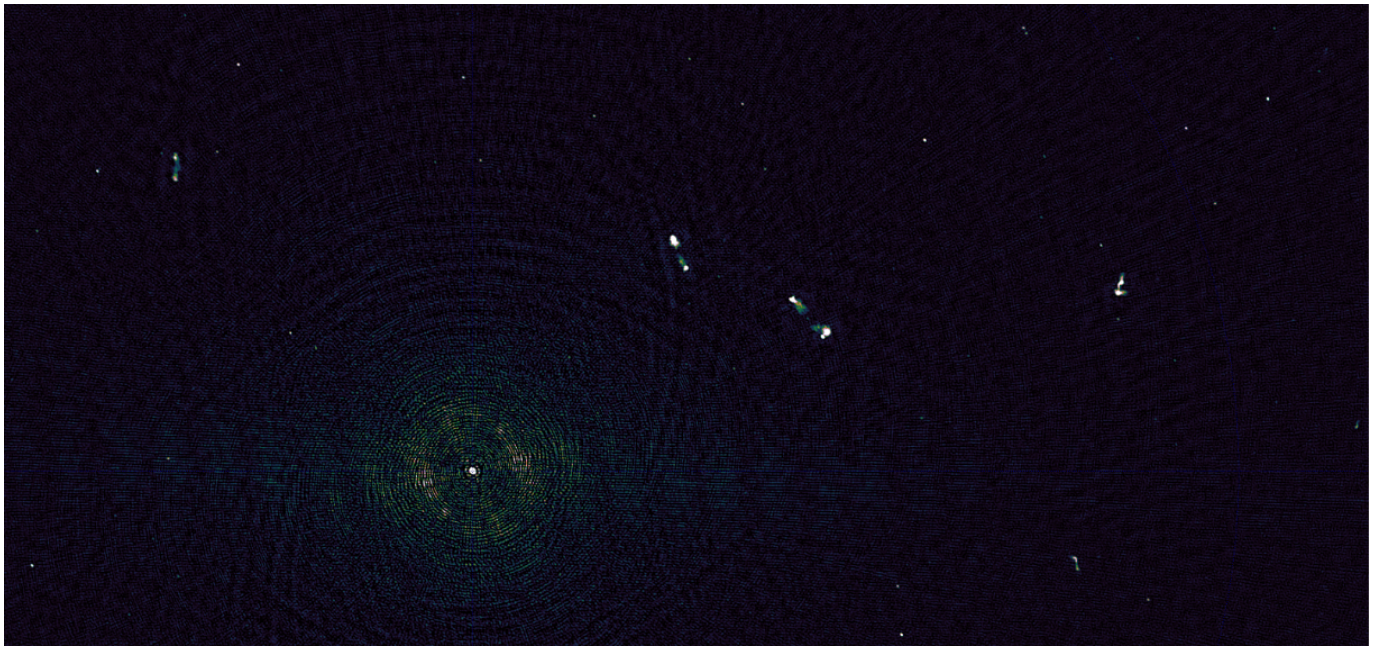


Figure 11: Zooming into the field immediately next to PKS 1934-638 reveals primarily 3 patches of very complex extended emission, all within 16' of PKS 1934-638. The brightest fitted model component next to the calibrator itself is at the 27 mJy level.

1934-638 (at 1.3 GHz). See figure 11. It is also comforting to note that the morphologies of the neighboring complex sources is strikingly similar to ATCA images made by Emil Lenc [9].

We find that instrument Stokes I accuracy is within $\approx 1.0\%$ of [Reynolds, 1994] in the lower and upper parts of the passband, see Figure 12. An overall comparison of model positions between the new model and the one derived by Tony Foley is plotted in Figure 13. The fitted position of PKS 1934-638 is accurate to within 0.5" of the position of the old model, and therefore corresponds to the SUMMS catalog.

The accuracy of the model is bound to the 1.67 mJy/beam RMS calibration errors in the immediate vicinity to PKS1934-638 itself, however we note that the noise in patches 1° away from PKS 1934-638 reaches 49.19μJy/beam. The overall RMS thus meets the requirements set out earlier. We believe the artifacts around the calibrator is due to narrowband RFI in the 900 and 1600 MHz regions, as well as the closure problems highlighted earlier. Calibrating at intervals lower than 64s serves only to raise noise across the image.

As a final sanity check of model accuracy, the waterfall plots of the corrected data and the corrected residuals are compared. The plots for an intermediate and long baseline are shown in Figure 14. If there was no substructure in the field, both baselines should show a gradual rise and decline in amplitude due to the spectral curvature of PKS 1934-638, apart from remaining RFI. This is not the case, instead there are broadscale and finescale ripples on the intermediate and long baselines across the passband in the corrected data.

The subtraction mostly removes these ripples, except in the 0.9-1.0 GHz region on the intermediate baseline. The bright patches are not apparent on the long baselines, indicating that these patches can be broadscale RFI, remaining unmodelled broadscale emission or an error introduced by considering only the apparent spectral index for some of the broadscale structure of nearby bright sources. The third option seems likely as the second: these sources are not at the peak gain of the antennae and are subject to any ellipticity in the main lobe of the primary beam. At the time of writing full L-Band beam models are not yet ready. These are necessary to compute the intrinsic brightness and spectral slopes of all the sources within the field.

Both histograms indicate that there may be a slight subtraction error, since the residuals are not centred around 0. This could indicate that the Reynolds model may be a slightly closer to the true spectral curvature of the calibrator. Since the source is at the phase centre this will not make a difference in the gain stability analysis in the next section.

[9] Private email conversation with Ian Heywood

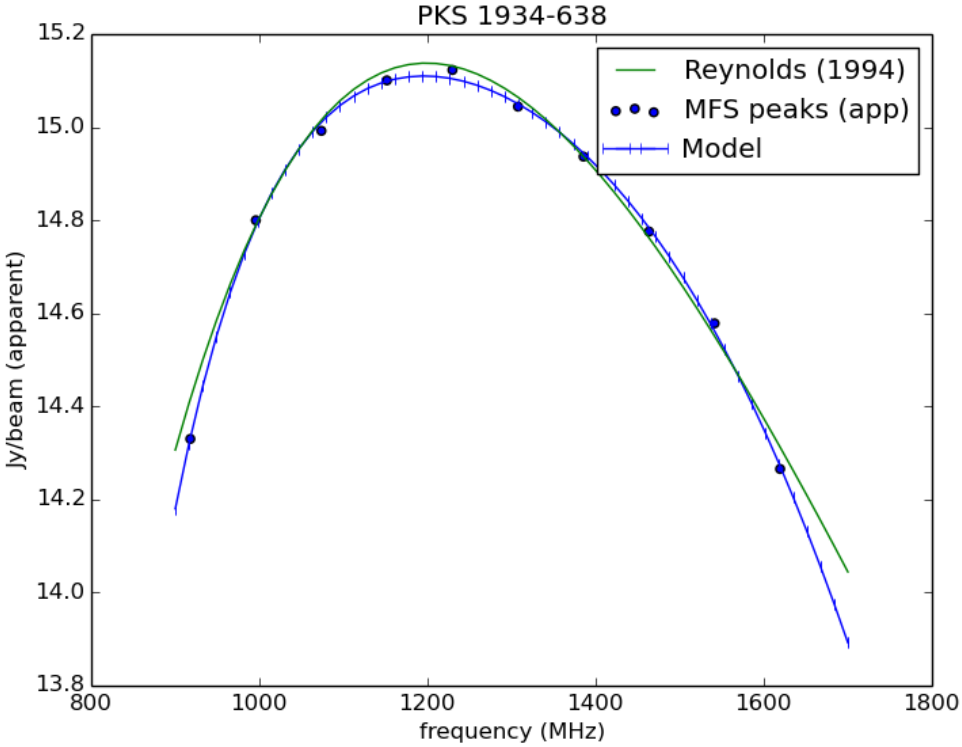


Figure 12: Fitted spectral curvature for 1934-638. MFS RMS within the region immediately next to the calibrator is estimated at 0.167mJy and is plotted as error bars. The two curvature models deviate at worst by 0.15 Jy (1%)

5 Bandpass stability

After model construction the SDP-uncalibrated observation 1498145355 was used for analysis work. The passband amplitude and phase solutions (B-Jones) for the 5 working antennae are plotted Figures 15, 16, 17, 18 and 19. 40 solutions were computed at 64s intervals.

For this observation none of the design criterion are met: the variations in gains are systematic in origin and are well-above the levels at which model-induced ripples were expected. If any high frequency modes were detected above systematic fluctuations, the differences in dominant modes would have been evident. Instead there are no discernible drops in any of the high frequency modes. This experiment may need to be rerun when the instrument is more stable.

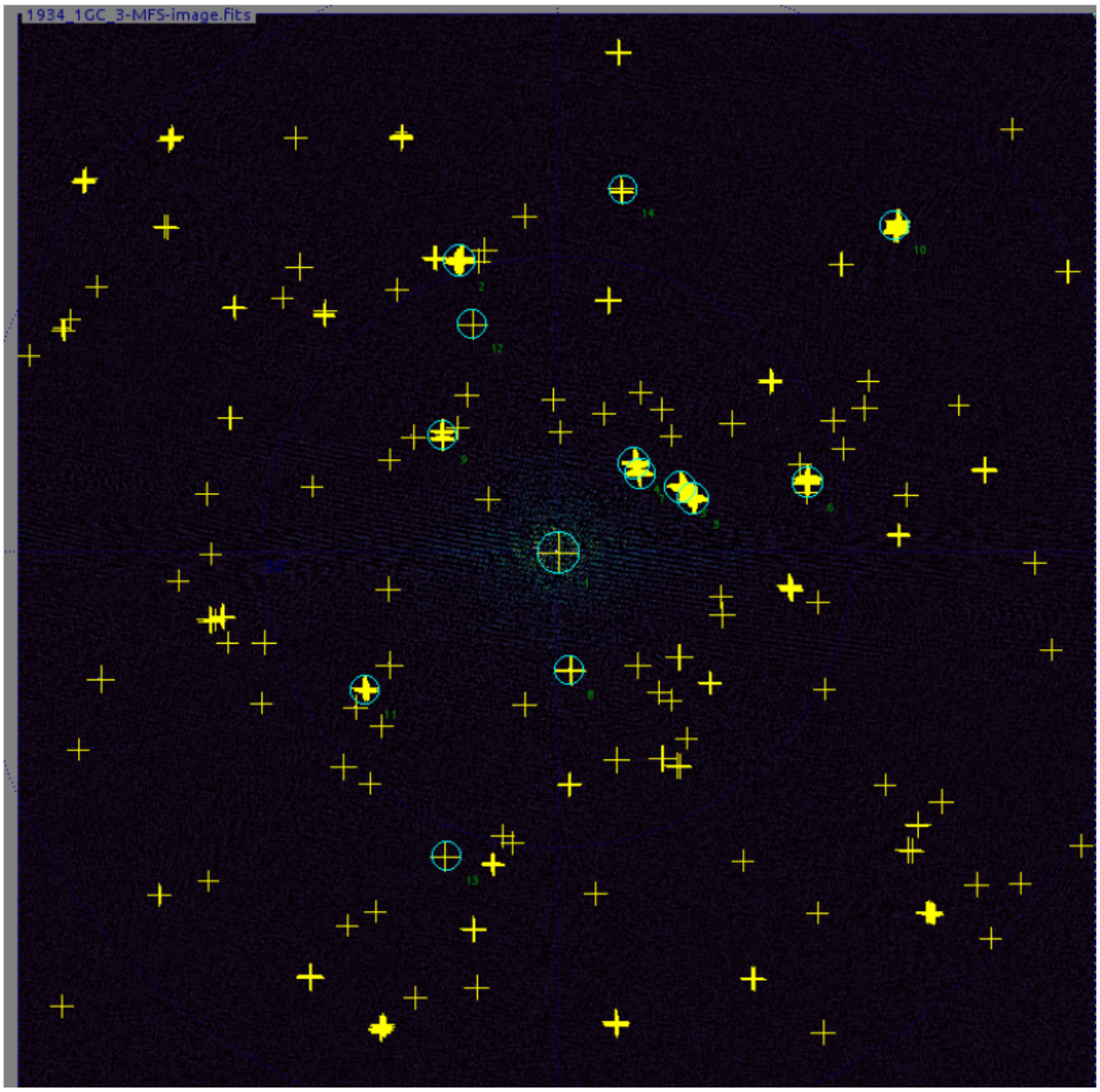
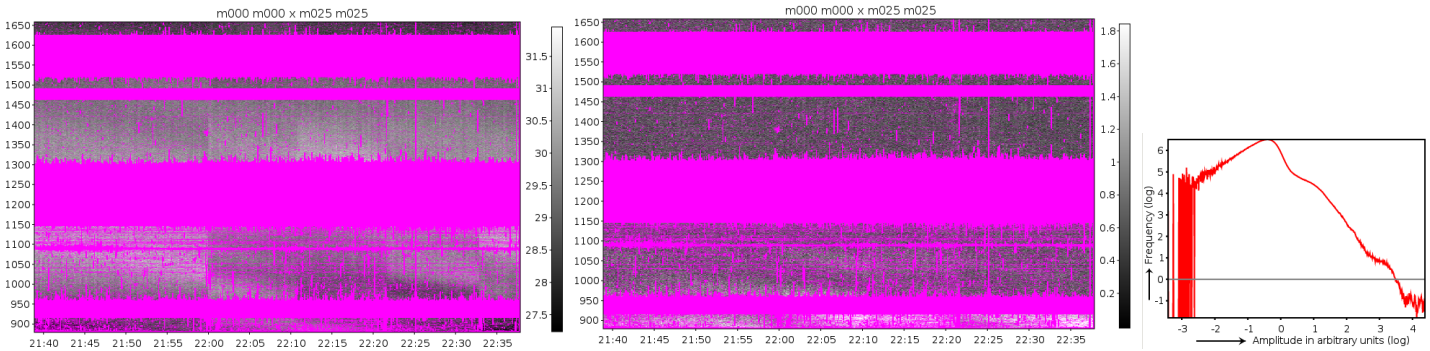
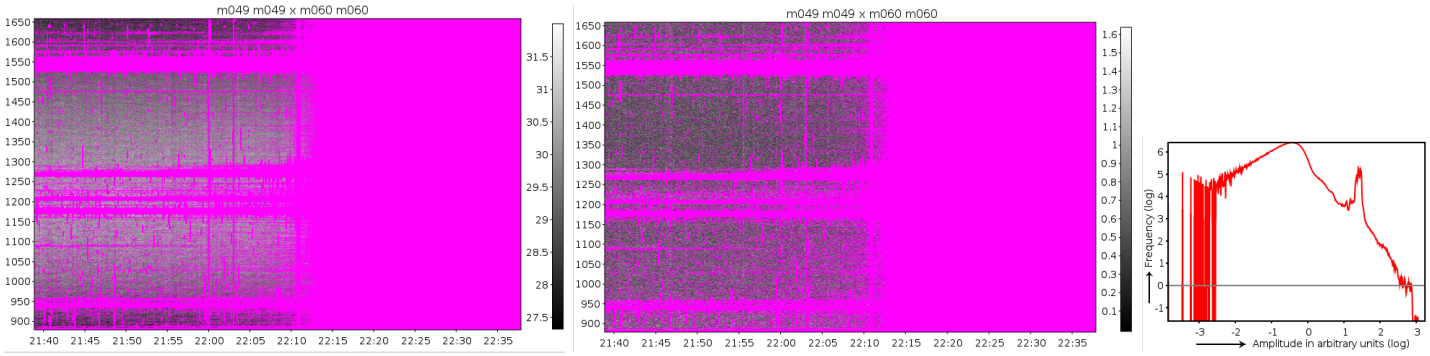


Figure 13: Visual comparison of new model (yellow crosses) to earlier model by Tony (cyan circles). The positions are again accurate to within instrumental resolution.



(a) m000&m025 corrected, corrected residuals and residual histogram



(b) m049&m060 corrected, corrected residuals and residual histogram

Figure 14: Corrected, model subtracted corrected residuals and histogram of the latter as plotted with the RFIGUI tool included with AOFlagger. Plots for an intermediate and long baseline is given for comparison.

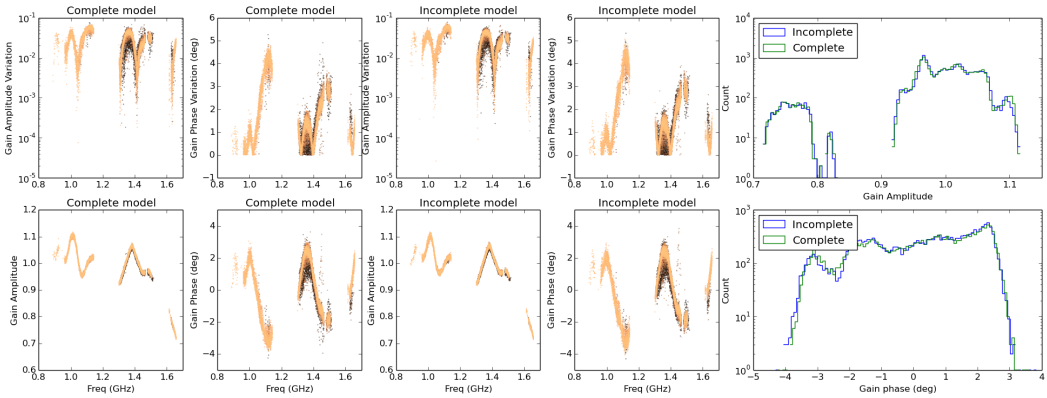


Figure 15: Gain variation on m000. Time is plotted in copper color scale: brown are earlier solutions, cream latter solutions.

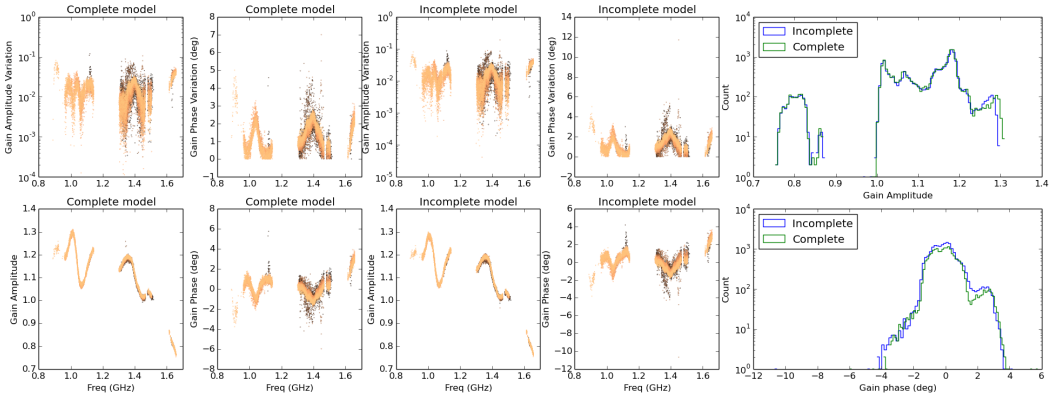


Figure 16: Gain variation on m021. Time is plotted in copper color scale: brown are earlier solutions, cream latter solutions.

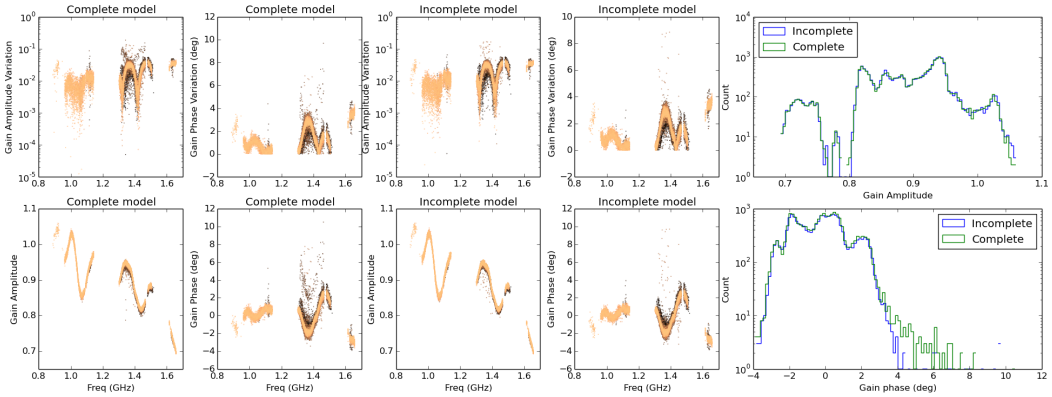


Figure 17: Gain variation on m049. Time is plotted in copper color scale: brown are earlier solutions, cream latter solutions.

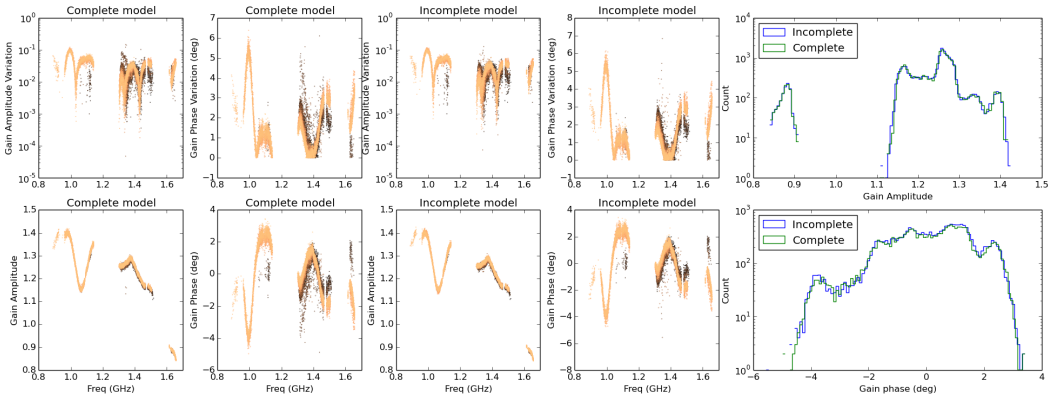


Figure 18: Gain variation on m060. Time is plotted in copper color scale: brown are earlier solutions, cream latter solutions.

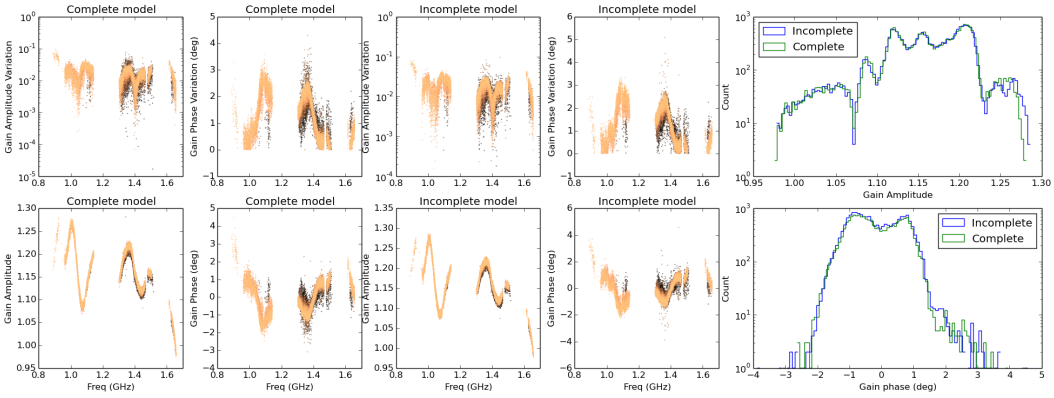


Figure 19: Gain variation on m061. Time is plotted in copper color scale: brown are earlier solutions, cream latter solutions.

A Apparent model of PKS 1934-638

The following source catalog of PKS 1934-638 was created for the purposes of investigating gain stability. Note that in this model both the brightness (Jy/beam) and spectral slope and curvature is apparent and should be used as a local sky model for PKS1934-638 observed with MeerKAT only. An intrinsic (beam-corrected) model is the subject of future investigation:

name	RA_h	RA_m	RA_s	DEC_d	DEC_m	DEC_s	i	$emaj_s$	$emin_s$	pa_d	ν_0	α	β	γ	δ
1934-638	19	39	25.0	-63	42	46.0	15.0578061029	0.000000	0.000000	0.0000000	1300000000.0	-0.0831475017647	-0.521084085983	-0.450352571232	-2.32699718777
B191G	19	39	13.13	-63	54	43.48	0.0281431841924	7.48276315394e-08	4.22561606434e-08	31.5167398449	1300000000.0	-1.04163067885	0.0	0.0	0.0
C291G	19	37	21.46	-63	37	25.82	0.0157801500393	7.49418163364e-08	4.22410965631e-08	31.9334941119	1300000000.0	-1.16229198815	0.0	0.0	0.0
D022G	19	40	40.67	-63	19	41.3	0.0155890101634	7.48296365251e-08	4.23665808825e-08	31.1905658646	1300000000.0	-1.67686838403	0.0	0.0	0.0
E163G	19	41	9.62	-64	13	44.38	0.0186280284697	7.48770399366e-08	4.23337868437e-08	31.0797470785	1300000000.0	-1.87580402639	0.0	0.0	0.0
E163aG	19	41	9.66	-64	13	43.36	0.0185212270944	7.48994741779e-08	4.23292183201e-08	31.0796128708	1300000000.0	-1.89461513485	0.0	0.0	0.0
F301G	19	37	32.19	-63	35	58.93	0.00959649756384	7.48380185575e-08	4.22990670942e-08	31.8933392301	1300000000.0	-2.77209151753	0.0	0.0	0.0
G043G	19	43	17.48	-63	13	31.17	0.00773426396077	7.4795486616e-08	4.22545112108e-08	30.6074978425	1300000000.0	-1.59484915296	0.0	0.0	0.0
H154G	19	43	17.09	-64	25	42.88	0.00698065733161	7.48348923768e-08	4.22648996616e-08	30.5999378098	1300000000.0	-3.88410783844	0.0	0.0	0.0
I114G	19	46	27.43	-63	54	59.96	0.00684421935201	7.48574331662e-08	4.22581601984e-08	29.8915081529	1300000000.0	-2.68301949751	0.0	0.0	0.0
J023G	19	40	53.71	-63	13	15.82	0.00724480070801	7.48194286064e-08	4.23193033807e-08	31.142320733	1300000000.0	-3.24178354699	0.0	0.0	0.0
K122G	19	41	59.77	-63	54	4.33000000002	0.00603181554335	7.48026866021e-08	4.23413514453e-08	30.8932071665	1300000000.0	-1.48422352351	0.0	0.0	0.0
L311G	19	38	9.73	-63	34	45.25	0.00724792050184	7.48588885335e-08	4.22889730272e-08	31.75318927	1300000000.0	-2.31543113749	0.0	0.0	0.0
M231G	19	37	32.27	-63	53	23.35	0.00554294862427	7.48873616734e-08	4.2191874714e-08	31.8941042175	1300000000.0	-1.62441618361	0.0	0.0	0.0
N284G	19	32	55.72	-63	33	50.16	0.00528203494626	7.48177420457e-08	4.23031228737e-08	32.9246926805	1300000000.0	-4.15808184274	0.0	0.0	0.0
O353G	19	38	27.69	-63	5	48.17	0.00524111423814	7.48593563554e-08	4.22979454779e-08	31.68529793	1300000000.0	-2.78461185722	0.0	0.0	0.0
P143G	19	42	43.44	-64	4	32.94	0.00452637946046	7.48457631536e-08	4.22812091356e-08	30.7286750207	1300000000.0	-1.52673814571	0.0	0.0	0.0
Q234G	19	33	57.72	-64	12	44.43	0.00413557062974	7.47955486217e-08	4.2288823832e-08	32.7002230549	1300000000.0	-3.64339971863	0.0	0.0	0.0
R221G	19	38	9.91	-63	54	21.01	0.00407435661794	7.48686865694e-08	4.22195418943e-08	31.7533142746	1300000000.0	-1.36518735792	0.0	0.0	0.0
S251G	19	36	52.66	-63	49	7.42000000001	0.00391088243686	7.48593335882e-08	4.2315775848e-08	32.041960368	1300000000.0	-0.918276992631	0.0	0.0	0.0
T173G	19	40	43.63	-64	21	2.89000000001	0.00399245269008	7.4901753136e-08	4.22767861067e-08	31.1769865011	1300000000.0	-2.78854026613	0.0	0.0	0.0
U312G	19	36	46.22	-63	29	39.38	0.00401747726489	7.48105846913e-08	4.22431325216e-08	32.064383638	1300000000.0	-1.58372364637	0.0	0.0	0.0
V132G	19	42	22.77	-63	56	31.05	0.0040304157075	7.47920332775e-08	4.22891493483e-08	30.8068971369	1300000000.0	-2.53492021141	0.0	0.0	0.0
W292G	19	35	37.43	-63	35	35.85	0.00477392551552	7.48189598777e-08	4.230317091e-08	32.321602208	1300000000.0	-3.44311568779	0.0	0.0	0.0
X234G	19	33	49.5	-64	10	8.64999999999	0.00389793426032	7.48416815148e-08	4.22148981187e-08	32.7305998086	1300000000.0	-2.42538485274	0.0	0.0	0.0
F301aG	19	37	32.04	-63	35	55.84	0.00523623085868	7.48978209272e-08	4.23284827266e-08	31.8939144904	1300000000.0	-3.39896659744	0.0	0.0	0.0
Y321G	19	38	14.54	-63	33	38.92	0.00319754838785	7.48502200552e-08	4.23175375212e-08	31.7352059932	1300000000.0	-5.99859698179	0.0	0.0	0.0
Z212G	19	37	47.37	-64	3	44.07	0.00521637471774	7.48950746912e-08	4.22247832387e-08	31.838152585	1300000000.0	-1.96961072455	0.0	0.0	0.0
aa013G	19	40	29.93	-63	12	6.20999999999	0.00330346300231	7.48158013586e-08	4.22670973163e-08	31.2308447913	1300000000.0	-1.64847596163	0.0	0.0	0.0

ab303G	19	34	45.98	-63	27	50.21	0.00325688221866	7.47680112805e-08	4.22539577658e-08	32.5124242791	1300000000.0	-2.36897717593	0.0	0.0	0.0
Y321aG	19	38	14.52	-63	33	33.54	0.00461064257231	7.48071357739e-08	4.23369888909e-08	31.7352622798	1300000000.0	-4.40940562488	0.0	0.0	0.0
F301bG	19	37	33.03	-63	35	57.4	0.00502247168865	7.48572221268e-08	4.23082454079e-08	31.8902116032	1300000000.0	-2.73577402073	0.0	0.0	0.0
ac202G	19	38	29.64	-64	3	55.5	0.00282661778824	7.48758403397e-08	4.22742334779e-08	31.6797790786	1300000000.0	-1.6410706989	0.0	0.0	0.0
J023aG	19	40	50.96	-63	12	54.31	0.00394769103403	7.48640234684e-08	4.23594625996e-08	31.1525960713	1300000000.0	-4.14771670921	0.0	0.0	0.0
ad355G	19	38	30.68	-62	51	58.91	0.00316665015487	7.47988745058e-08	4.22574947247e-08	31.6737748374	1300000000.0	-4.01329421016	0.0	0.0	0.0
ae103G	19	44	44.55	-63	49	19.12	0.00300813182953	7.4917577905e-08	4.23290359716e-08	30.2774560941	1300000000.0	-3.15716427152	0.0	0.0	0.0
F301cG	19	37	32.77	-63	35	58.85	0.00538594135271	7.48404202585e-08	4.23338824596e-08	31.8911756643	1300000000.0	-3.38421260734	0.0	0.0	0.0
af352G	19	38	39.35	-63	17	14.55	0.00336127682326	7.47944653769e-08	4.2254126864e-08	31.6422319874	1300000000.0	-2.63807887972	0.0	0.0	0.0
ag204G	19	36	20.95	-64	25	56.37	0.00251271793497	7.48333480706e-08	4.22905091268e-08	32.164174586	1300000000.0	-3.52932232257	0.0	0.0	0.0
ah023G	19	41	15.26	-63	12	49.0	0.00274922287867	7.48553621525e-08	4.23334725098e-08	31.0621942246	1300000000.0	-3.14464129387	0.0	0.0	0.0
af352aG	19	38	39.15	-63	17	12.52	0.0036010361737	7.4906372977e-08	4.23663654289e-08	31.6429962238	1300000000.0	-3.16709265749	0.0	0.0	0.0
Y321bG	19	38	14.13	-63	33	42.79	0.00289248490228	7.47811154633e-08	4.22918866863e-08	31.7367303968	1300000000.0	-6.68950154683	0.0	0.0	0.0
Y321cG	19	38	14.1	-63	33	37.29	0.00296053119255	7.48484387277e-08	4.22728010696e-08	31.7368299212	1300000000.0	-6.32779220315	0.0	0.0	0.0
ai283G	19	34	6.73	-63	36	34.03	0.00234454917737	7.4828662619e-08	4.23149443624e-08	32.660217609	1300000000.0	-2.30097370149	0.0	0.0	0.0
J023bG	19	40	51.41	-63	12	57.39	0.00307799351637	7.49008298338e-08	4.2285818113e-08	31.1509089242	1300000000.0	-4.75377583872	0.0	0.0	0.0
Y321dG	19	38	13.91	-63	33	34.1	0.00257798620093	7.4908247655e-08	4.23138119355e-08	31.7375424873	1300000000.0	-4.76103556195	0.0	0.0	0.0
aj013G	19	39	55.04	-63	8	30.5	0.00239102402076	7.48218641958e-08	4.22336125636e-08	31.3606732679	1300000000.0	-2.0844448178	0.0	0.0	0.0
W292aG	19	35	36.83	-63	35	10.85	0.0025438004175	7.48743636337e-08	4.23537550398e-08	32.3237879553	1300000000.0	-3.59803642833	0.0	0.0	0.0
ak194G	19	38	29.36	-64	30	34.84	0.00409045509675	7.48532814486e-08	4.2384967372e-08	31.6816291172	1300000000.0	-4.50054834044	0.0	0.0	0.0
al235G	19	32	54.09	-64	15	55.87	0.00216007099754	7.48390523407e-08	4.23992270324e-08	32.9395978003	1300000000.0	-4.09070299831	0.0	0.0	0.0
W292bG	19	35	37.43	-63	35	31.76	0.00326881220747	7.49538826539e-08	4.22841055017e-08	32.3215893401	1300000000.0	-4.51936867298	0.0	0.0	0.0
C291aG	19	37	19.72	-63	37	13.5	0.00269438254641	7.48374150545e-08	4.23107332389e-08	31.9399679868	1300000000.0	-4.44050015961	0.0	0.0	0.0
am165G	19	42	11.86	-64	31	7.20000000001	0.00232601479209	7.49029932312e-08	4.22753437062e-08	30.8446541404	1300000000.0	-4.78477018689	0.0	0.0	0.0
W292cG	19	35	37.05	-63	35	34.97	0.00360291782122	7.48377962955e-08	4.23325790454e-08	32.3230179259	1300000000.0	-4.05450327564	0.0	0.0	0.0
an101G	19	42	1.35000000001	-63	46	23.93	0.0021450608788	7.47237850231e-08	4.22615541061e-08	30.8879570019	1300000000.0	-2.19978373976	0.0	0.0	0.0
F301dG	19	37	32.27	-63	36	2.08000000002	0.00428482459822	7.48215858154e-08	4.23521438459e-08	31.8930633287	1300000000.0	-4.18279068729	0.0	0.0	0.0
ao113G	19	43	55.53	-63	51	41.77	0.00234538542686	7.48780116815e-08	4.2234537611e-08	30.460417549	1300000000.0	-1.85835430083	0.0	0.0	0.0
ap031G	19	40	47.2	-63	26	45.01	0.00209253499583	7.48073881391e-08	4.23261895287e-08	31.1659501966	1300000000.0	0.2886936821	0.0	0.0	0.0
J023cG	19	40	50.61	-63	12	52.16	0.00275051332738	7.48517550368e-08	4.23731221028e-08	31.1538727995	1300000000.0	-4.21224457553	0.0	0.0	0.0
aq132G	19	42	31.38	-63	58	25.22	0.00212946194031	7.48781438728e-08	4.22842849435e-08	30.7744799142	1300000000.0	-1.4642890798	0.0	0.0	0.0
C291bG	19	37	21.72	-63	37	25.22	0.00962301236979	7.47955486217e-08	4.23063268544e-08	31.9325321511	1300000000.0	-2.10364006564	0.0	0.0	0.0
D022aG	19	40	40.66	-63	19	40.08	0.0148901980706	7.48854663394e-08	4.22597528716e-08	31.1906270797	1300000000.0	-1.79391264652	0.0	0.0	0.0
Y321eG	19	38	14.3	-63	33	46.99	0.00170431554139	7.48451516117e-08	4.22429490255e-08	31.7361202192	1300000000.0	-7.0700457352	0.0	0.0	0.0

af352bG	19	38	38.99	-63	17	9.29000000001	0.00256629573213	7.483247057e-08	4.23183306181e-08	31.6435623014	1300000000.0	-2.91220387004	0.0	0.0	0.0
ak194aG	19	38	29.53	-64	30	33.4	0.00369156216766	7.4875406983e-08	4.22285776065e-08	31.6809667356	1300000000.0	-4.64311543417	0.0	0.0	0.0
Y321fG	19	38	14.52	-63	33	31.46	0.00419512834719	7.48705656932e-08	4.2281888189e-08	31.735280648	1300000000.0	-3.99508322362	0.0	0.0	0.0
ar212G	19	37	32.84	-64	4	26.77	0.00294492380607	7.48263698272e-08	4.23011564367e-08	31.8926409537	1300000000.0	-1.97488817483	0.0	0.0	0.0
as051G	19	41	36.95	-63	30	54.16	0.00208133639559	7.48084817118e-08	4.22559136011e-08	30.980249417	1300000000.0	-1.16438681477	0.0	0.0	0.0
O353aG	19	38	27.83	-63	6	7.06	0.00203443599928	7.48655888125e-08	4.22516989214e-08	31.6847859833	1300000000.0	-3.11892149916	0.0	0.0	0.0
Y321gG	19	38	13.77	-63	33	45.23	0.00208828273763	7.48263139794e-08	4.22232373737e-08	31.7380720135	1300000000.0	-7.28572992676	0.0	0.0	0.0
J023dG	19	40	50.94	-63	12	59.01	0.00263948164579	7.48292889689e-08	4.23292136743e-08	31.1526579132	1300000000.0	-4.90384391002	0.0	0.0	0.0
J023eG	19	40	54.48	-63	13	14.86	0.00205567298957	7.486643922e-08	4.2362403132e-08	31.1394715045	1300000000.0	-5.66485999347	0.0	0.0	0.0
W292dG	19	35	36.33	-63	35	11.5	0.00315252618248	7.47743666314e-08	4.23023852768e-08	32.325649053	1300000000.0	-3.429565193	0.0	0.0	0.0
Y321hG	19	38	14.78	-63	33	41.91	0.00172491726388	7.48089321049e-08	4.22811161137e-08	31.7343265704	1300000000.0	-6.64486983566	0.0	0.0	0.0
at324G	19	35	10.0	-63	13	14.74	0.00171324474765	7.48474803927e-08	4.2333153141e-08	32.4209091933	1300000000.0	-4.14491282537	0.0	0.0	0.0
W292eG	19	35	36.41	-63	35	8.10000000001	0.00283880591913	7.48677762117e-08	4.22675082976e-08	32.325329738	1300000000.0	-3.79815511809	0.0	0.0	0.0
C291cG	19	37	20.11	-63	37	15.97	0.0024447821501	7.48688496403e-08	4.23107332389e-08	31.9385208627	1300000000.0	-4.78293682124	0.0	0.0	0.0
C291dG	19	37	20.48	-63	37	11.8	0.00185915933272	7.48467256707e-08	4.23190148845e-08	31.9371225524	1300000000.0	-5.23485961734	0.0	0.0	0.0
N284aG	19	32	55.28	-63	33	54.75	0.00199209818198	7.48586908521e-08	4.2322635078e-08	32.9263359749	1300000000.0	-6.13363730603	0.0	0.0	0.0
J023fG	19	40	54.25	-63	13	11.39	0.00183768310806	7.48738792713e-08	4.22172812084e-08	31.1403449802	1300000000.0	-6.23354580458	0.0	0.0	0.0
C291eG	19	37	19.41	-63	37	17.52	0.00207083300668	7.47285647697e-08	4.21863958161e-08	31.9411176919	1300000000.0	-4.3961489227	0.0	0.0	0.0
au215G	19	35	14.95	-64	31	21.64	0.00165608773634	7.47971331456e-08	4.23240270798e-08	32.4129539227	1300000000.0	-4.36531708212	0.0	0.0	0.0
av041G	19	41	9.54000000001	-63	30	24.39	0.0018631879866	7.47927109866e-08	4.22690126102e-08	31.0825026072	1300000000.0	-3.43595863037	0.0	0.0	0.0
Y321iG	19	38	15.07	-63	33	34.38	0.00168041089617	7.47924776345e-08	4.23158769264e-08	31.7332359182	1300000000.0	-6.23550741007	0.0	0.0	0.0
C291fG	19	37	20.35	-63	37	18.59	0.00229935432554	7.48398045124e-08	4.23319116446e-08	31.9376172469	1300000000.0	-4.43180670843	0.0	0.0	0.0
F301eG	19	37	31.48	-63	36	0.760000000009	0.00189368557931	7.48021257542e-08	4.23338824596e-08	31.8959875563	1300000000.0	-5.62545747944	0.0	0.0	0.0
L311aG	19	38	9.77	-63	34	42.25	0.00337252150564	7.48206236321e-08	4.23088930404e-08	31.7530425418	1300000000.0	-3.89595771376	0.0	0.0	0.0
J023gG	19	40	51.39	-63	12	53.22	0.00238618341146	7.48388526361e-08	4.22384769843e-08	31.1509764192	1300000000.0	-4.77151060224	0.0	0.0	0.0
L311bG	19	38	10.31	-63	34	47.65	0.00172214940133	7.47727419555e-08	4.22434378293e-08	31.7510238004	1300000000.0	-4.01305252849	0.0	0.0	0.0
C291gG	19	37	19.97	-63	37	9.42000000001	0.00183701451601	7.48341243885e-08	4.23099001049e-08	31.939049509	1300000000.0	-5.11351037686	0.0	0.0	0.0
Y321jG	19	38	13.26	-63	33	47.5	0.00109274236492	7.48639901955e-08	4.21804923374e-08	31.7399752047	1300000000.0	-8.02637908772	0.0	0.0	0.0
J023hG	19	40	51.86	-63	12	58.78	0.00216613745697	7.48574544014e-08	4.22724490658e-08	31.1492468286	1300000000.0	-4.88289366922	0.0	0.0	0.0
J023iG	19	40	50.43	-63	12	56.66	0.00212066645732	7.48176097476e-08	4.23262654157e-08	31.1545543635	1300000000.0	-5.28380098467	0.0	0.0	0.0
aw174G	19	40	41.44	-64	26	53.04	0.00189966402532	7.48085763472e-08	4.22982182329e-08	31.1849639679	1300000000.0	-3.9545662026	0.0	0.0	0.0
C291hG	19	37	19.34	-63	37	10.86	0.00192776387827	7.47991987606e-08	4.23016023409e-08	31.9413962536	1300000000.0	-4.18237996814	0.0	0.0	0.0
ax303G	19	35	14.49	-63	29	2.82000000001	0.00150946009044	7.48023036486e-08	4.22896748193e-08	32.4063056185	1300000000.0	-2.1469786917	0.0	0.0	0.0
W292fG	19	35	35.96	-63	35	8.73000000001	0.00194352197128	7.48447294631e-08	4.22450609276e-08	32.3270165758	1300000000.0	-3.9949372299	0.0	0.0	0.0

Y321kG	19	38	13.76	-63	33	41.26	0.00177101961707	7.47493942724e-08	4.23167052956e-08	31.7381351091	1300000000.0	-7.75804047084	0.0	0.0	0.0
J023jG	19	40	53.59	-63	13	18.08	0.00438283944208	7.48448444157e-08	4.22210386005e-08	31.1427705468	1300000000.0	-4.09867128039	0.0	0.0	0.0
Q234aG	19	33	54.62	-64	12	44.77	0.00192166581925	7.48811104564e-08	4.22750882477e-08	32.7118434366	1300000000.0	-3.86560674108	0.0	0.0	0.0
J023kG	19	40	51.43	-63	13	1.88	0.00199880449923	7.48035534983e-08	4.22526328813e-08	31.1508337144	1300000000.0	-5.33422013582	0.0	0.0	0.0
ay050G	19	40	29.32	-63	37	19.14	0.00140754659107	7.48498091012e-08	4.23655101798e-08	31.2322209508	1300000000.0	0.140470619252	0.0	0.0	0.0
az055G	19	45	16.8	-63	9	15.42	0.00239834768162	7.48639805638e-08	4.2380477062e-08	30.1644537734	1300000000.0	-4.64643412667	0.0	0.0	0.0
ba023G	19	40	36.52	-63	13	7.37	0.00139588991203	7.48107161255e-08	4.22968277064e-08	31.2062723916	1300000000.0	-1.08134234548	0.0	0.0	0.0
bb103G	19	44	33.34	-63	48	53.4	0.00213010674848	7.48571128853e-08	4.23592602637e-08	30.3194419192	1300000000.0	-2.76172103984	0.0	0.0	0.0
bc244G	19	33	28.04	-64	7	35.33	0.00143174717353	7.47647375062e-08	4.22532751607e-08	32.8105854192	1300000000.0	-2.54967002834	0.0	0.0	0.0
C291iG	19	37	19.78	-63	37	20.68	0.00151754091571	7.4890975827e-08	4.22841861149e-08	31.939744461	1300000000.0	-5.00129929634	0.0	0.0	0.0
Y321lG	19	38	13.75	-63	33	50.8	0.000841570695108	7.48226888176e-08	4.22783889316e-08	31.7381682524	1300000000.0	-8.21900850443	0.0	0.0	0.0
bd045G	19	45	11.4	-63	0	29.99	0.00122233658697	7.48722998735e-08	4.2345212769e-08	30.1861600105	1300000000.0	-5.22073654436	0.0	0.0	0.0
Z212aG	19	37	47.48	-64	3	45.68	0.00368918542742	7.48527043407e-08	4.22765841504e-08	31.8377364378	1300000000.0	-2.59454471795	0.0	0.0	0.0
bf221G	19	37	50.77	-63	56	57.4	0.00125983571474	7.47935988136e-08	4.22877592986e-08	31.8250640698	1300000000.0	0.249623437624	0.0	0.0	0.0
M231aG	19	37	32.07	-63	53	26.55	0.00332519173533	7.48650503256e-08	4.23126512053e-08	31.894845354	1300000000.0	-2.82724768625	0.0	0.0	0.0
W292gG	19	35	37.26	-63	35	13.87	0.00144192904389	7.48480209766e-08	4.22759922305e-08	32.3221962165	1300000000.0	-3.64651704333	0.0	0.0	0.0
J023lG	19	40	52.01	-63	13	3.69	0.00144620631892	7.48832273719e-08	4.23814251978e-08	31.1486707035	1300000000.0	-5.15971401117	0.0	0.0	0.0
C291jG	19	37	20.9	-63	37	19.4	0.00137395221871	7.48867962076e-08	4.22630912023e-08	31.9355826999	1300000000.0	-4.52379723624	0.0	0.0	0.0
L311cG	19	38	9.44	-63	34	45.79	0.00376425628682	7.48014509784e-08	4.23303971788e-08	31.7542932159	1300000000.0	-3.34230281583	0.0	0.0	0.0
bg132G	19	42	7.54000000001	-64	0	20.7	0.00127286525271	7.48436576592e-08	4.22906393285e-08	30.863585322	1300000000.0	0.248502845803	0.0	0.0	0.0
W292hG	19	35	37.75	-63	35	37.45	0.00211759230543	7.49147542986e-08	4.22841055017e-08	32.3203949159	1300000000.0	-4.17735437467	0.0	0.0	0.0
J023mG	19	40	53.53	-63	13	11.91	0.00218701991495	7.48379581198e-08	4.23109919681e-08	31.1430205788	1300000000.0	-5.40225263188	0.0	0.0	0.0
az055aG	19	45	16.55	-63	9	15.3	0.00205528479593	7.4844878354e-08	4.22436255905e-08	30.165378149	1300000000.0	-4.78397586095	0.0	0.0	0.0
W292iG	19	35	36.49	-63	35	34.53	0.00126814452464	7.4758822825e-08	4.23244193102e-08	32.3251100112	1300000000.0	-5.23134279742	0.0	0.0	0.0
ae103aG	19	44	44.15	-63	49	19.88	0.0018667763502	7.48733224586e-08	4.23290359716e-08	30.2789464972	1300000000.0	-4.49786408432	0.0	0.0	0.0
bj164G	19	41	37.84	-64	28	1.09	0.00127559707359	7.48524827792e-08	4.23890887741e-08	30.9728428203	1300000000.0	-2.46307321832	0.0	0.0	0.0
bk001G	19	39	28.31	-63	27	17.0	0.00109630732137	7.48280940815e-08	4.23356371858e-08	31.4599987789	1300000000.0	-1.5578026516	0.0	0.0	0.0
W292jG	19	35	38.01	-63	35	32.72	0.00174803181958	7.48736229716e-08	4.2223597162e-08	32.3194201227	1300000000.0	-5.33469867896	0.0	0.0	0.0
bl171G	19	39	55.46	-63	58	9.95999999999	0.00135208621755	7.48118208213e-08	4.22815087421e-08	31.3583036817	1300000000.0	-1.36463739074	0.0	0.0	0.0
bm136G	19	47	10.47	-64	28	8.98000000001	0.0010058279793	7.48638630139e-08	4.22199331545e-08	29.7221642377	1300000000.0	-6.30101842048	0.0	0.0	0.0
bn083G	19	44	44.05	-63	36	29.54	0.00118115710115	7.48565942593e-08	4.23272318012e-08	30.2815273262	1300000000.0	-2.18131001869	0.0	0.0	0.0
bp033G	19	41	49.79	-63	16	1.23000000001	0.00120929378921	7.47951139234e-08	4.22095483903e-08	30.9335244547	1300000000.0	-1.77096763714	0.0	0.0	0.0
W292kG	19	35	37.4	-63	35	17.58	0.00126655541171	7.48156666477e-08	4.22720749616e-08	32.3216681824	1300000000.0	-2.7648426281	0.0	0.0	0.0
F301fG	19	37	32.52	-63	35	56.42	0.00512228037302	7.48496753273e-08	4.23119931729e-08	31.8921177477	1300000000.0	-4.07962196358	0.0	0.0	0.0

bq292G	19	35	43.76	-63	33	42.48	0.00113860800907	7.49317645448e-08	4.22517423618e-08	32.2977532696	1300000000.0	-2.35424239621	0.0	0.0	0.0
F301gG	19	37	31.61	-63	36	3.41	0.0015208200703	7.48176754586e-08	4.23222571581e-08	31.8955120752	1300000000.0	-6.31994035255	0.0	0.0	0.0
J023nG	19	40	53.27	-63	13	14.96	0.00206317424355	7.48289803937e-08	4.21900569097e-08	31.1439540659	1300000000.0	-5.11320674156	0.0	0.0	0.0
F301hG	19	37	30.97	-63	36	2.89999999999	0.00110847591742	7.48736492364e-08	4.23156255854e-08	31.8979141577	1300000000.0	-5.4256691348	0.0	0.0	0.0
Y321mG	19	38	14.8	-63	33	46.74	0.0010639138923	7.48418647893e-08	4.23121418992e-08	31.734237817	1300000000.0	-6.73200020863	0.0	0.0	0.0
Y321nG	19	38	13.03	-63	33	44.41	0.000655960218632	7.48427500625e-08	4.2265786802e-08	31.7408567133	1300000000.0	-8.65928286091	0.0	0.0	0.0
br321G	19	37	50.34	-63	28	17.35	0.00105298254429	7.48336180856e-08	4.2348542041e-08	31.8252076216	1300000000.0	-1.88846898979	0.0	0.0	0.0
Z212bG	19	37	47.14	-64	3	47.03	0.00285401044448	7.48357518924e-08	4.23242133219e-08	31.8390146686	1300000000.0	-3.24590955663	0.0	0.0	0.0
W292lG	19	35	36.24	-63	35	4.38	0.00160009518532	7.48189598777e-08	4.22248659058e-08	32.3259829858	1300000000.0	-4.72787363579	0.0	0.0	0.0
at324aG	19	35	9.42	-63	13	18.59	0.000993180496192	7.48921633654e-08	4.23257233628e-08	32.4230703918	1300000000.0	-5.39674891814	0.0	0.0	0.0
bt056G	19	46	27.29	-63	4	15.8	0.00107841577902	7.48513419019e-08	4.2208063701e-08	29.9035241391	1300000000.0	-6.38044165086	0.0	0.0	0.0
ar212aG	19	37	32.61	-64	4	28.25	0.00194817760233	7.48635723123e-08	4.22948826749e-08	31.8934853165	1300000000.0	-2.89212792343	0.0	0.0	0.0
bu251G	19	36	54.17	-63	47	12.98	0.000909589838011	7.4777824073e-08	4.22517823115e-08	32.0361461247	1300000000.0	-2.98660123786	0.0	0.0	0.0
J023oG	19	40	54.13	-63	13	18.04	0.00163883588018	7.48905092968e-08	4.22087637323e-08	31.1407768094	1300000000.0	-5.9783427432	0.0	0.0	0.0
bb103aG	19	44	33.22	-63	48	55.17	0.00235998881826	7.47770403769e-08	4.23427261897e-08	30.3198952899	1300000000.0	-2.5451927948	0.0	0.0	0.0
J023pG	19	40	51.95	-63	12	54.92	0.00173348918957	7.48517550368e-08	4.23262654157e-08	31.1489038463	1300000000.0	-5.20165002563	0.0	0.0	0.0
J023qG	19	40	55.11	-63	13	14.02	0.00101028926473	7.48604001327e-08	4.22641361941e-08	31.1371339184	1300000000.0	-6.12207612188	0.0	0.0	0.0
am165aG	19	42	9.34	-64	30	46.31	0.000885940403175	7.48186858672e-08	4.22636030382e-08	30.8541479439	1300000000.0	-5.32012442433	0.0	0.0	0.0
bv262G	19	35	50.98	-63	46	7.83000000002	0.000937775710323	7.48361127765e-08	4.23362658192e-08	32.2722390171	1300000000.0	-3.99747615828	0.0	0.0	0.0
aw174aG	19	40	41.08	-64	26	52.75	0.00150187087936	7.48432836738e-08	4.23421456443e-08	31.1863187163	1300000000.0	-4.45170343093	0.0	0.0	0.0
bw274G	19	32	6.96000000001	-63	43	10.47	0.00103613425487	7.49052819273e-08	4.2295559959e-08	33.1088038365	1300000000.0	-3.05355854108	0.0	0.0	0.0
bx073G	19	44	21.4	-63	28	52.75	0.000884877154024	7.48190731176e-08	4.22802184421e-08	30.3672670543	1300000000.0	-3.76138308746	0.0	0.0	0.0
by043G	19	42	54.38	-63	18	4.94	0.000973545838451	7.4846610721e-08	4.23281191839e-08	30.6929224784	1300000000.0	-0.204298205898	0.0	0.0	0.0
ah023aG	19	41	14.91	-63	12	47.34	0.00122602700356	7.48679642379e-08	4.22042041965e-08	31.0635120697	1300000000.0	-4.17403838207	0.0	0.0	0.0
ak194bG	19	38	29.54	-64	30	37.78	0.0016223146638	7.47961237604e-08	4.22541450925e-08	31.6809257785	1300000000.0	-5.95024948977	0.0	0.0	0.0
Y321oG	19	38	13.53	-63	33	38.16	0.000965599665813	7.48179034753e-08	4.23039565286e-08	31.7389616877	1300000000.0	-7.57084418539	0.0	0.0	0.0
Y321pG	19	38	15.33	-63	33	38.54	0.000774475082637	7.49759942381e-08	4.23221003358e-08	31.7322444595	1300000000.0	-6.83531221857	0.0	0.0	0.0
bt056aG	19	46	30.01	-63	4	27.32	0.00119965455918	7.48062496411e-08	4.22262584139e-08	29.8933718781	1300000000.0	-6.76165029139	0.0	0.0	0.0
J023rG	19	40	52.39	-63	12	59.82	0.0010135835456	7.48636878925e-08	4.22823594891e-08	31.1472627391	1300000000.0	-6.00321150555	0.0	0.0	0.0
ca054G	19	44	17.13	-63	17	30.95	0.00137626866419	7.48799409077e-08	4.23892279514e-08	30.3849601893	1300000000.0	-3.22464453838	0.0	0.0	0.0
cb172G	19	40	15.62	-64	11	38.64	0.000908229656994	7.48423219884e-08	4.22166244067e-08	31.282422636	1300000000.0	-0.690108081105	0.0	0.0	0.0
C291kG	19	37	19.01	-63	37	15.01	0.00108273386675	7.48209646577e-08	4.22704978725e-08	31.9426214728	1300000000.0	-4.70065387536	0.0	0.0	0.0
cc182G	19	39	13.05	-64	6	23.23	0.000848132139155	7.48205353638e-08	4.22413724009e-08	31.5171365859	1300000000.0	-1.82137869966	0.0	0.0	0.0
cd314G	19	34	18.74	-63	8	49.66	0.000661490696457	7.49270264127e-08	4.23468304184e-08	32.6108461891	1300000000.0	-7.69765477516	0.0	0.0	0.0

C291lG	19	37	20.87	-63	37	14.33	0.000922493883956	7.48622739918e-08	4.22660066455e-08	31.9356793786	1300000000.0	-6.59295432322	0.0	0.0	0.0
J023sG	19	40	54.99	-63	13	9.39000000001	0.000694316174181	7.48419015756e-08	4.22430359244e-08	31.1375905803	1300000000.0	-7.60072973806	0.0	0.0	0.0
ce024G	19	41	44.64	-63	0	43.23	0.000893578640364	7.48547272637e-08	4.23038976464e-08	30.9538344512	1300000000.0	-5.0102502256	0.0	0.0	0.0
ce024aG	19	41	44.55	-63	0	38.84	0.00105975768847	7.4855915596e-08	4.22940100938e-08	30.9541568379	1300000000.0	-5.89263444639	0.0	0.0	0.0
L311dG	19	38	11.89	-63	34	31.39	0.000506022935589	7.48263139794e-08	4.22307849124e-08	31.7451123965	1300000000.0	-5.43653631712	0.0	0.0	0.0
cf341G	19	38	42.37	-63	28	47.46	0.000877859033771	7.48978603116e-08	4.23273649872e-08	31.6312496129	1300000000.0	-1.8742589678	0.0	0.0	0.0
cg193G	19	38	48.42	-64	17	28.92	0.000805864732819	7.4850946061e-08	4.22836280199e-08	31.6096696925	1300000000.0	-2.60352385125	0.0	0.0	0.0
J023tG	19	40	55.64	-63	13	15.94	0.00056701132483	7.48332394512e-08	4.2195085977e-08	31.1351507304	1300000000.0	-6.54345673802	0.0	0.0	0.0
ch041G	19	40	54.82	-63	30	10.8	0.00082240967662	7.48476925543e-08	4.237504498e-08	31.1373828808	1300000000.0	0.0288806134517	0.0	0.0	0.0
ci173G	19	40	25.54	-64	14	25.34	0.000721152510025	7.48597834565e-08	4.2273719057e-08	31.2451360164	1300000000.0	-4.35643961203	0.0	0.0	0.0
L311eG	19	38	10.26	-63	34	42.64	0.00152795842925	7.48024458323e-08	4.22752816831e-08	31.7512092278	1300000000.0	-6.06771130033	0.0	0.0	0.0
C291mG	19	37	20.41	-63	37	3.04000000001	0.000526790579049	7.49098147002e-08	4.23281687405e-08	31.9374029622	1300000000.0	-6.62559574843	0.0	0.0	0.0
C291nG	19	37	20.79	-63	37	7.09	0.000824558533422	7.47865763226e-08	4.23152991109e-08	31.9359586668	1300000000.0	-5.75933465031	0.0	0.0	0.0
F301iG	19	37	29.39	-63	36	8.87	0.000628940815556	7.48209646577e-08	4.22775567106e-08	31.9037921619	1300000000.0	-4.57659213105	0.0	0.0	0.0
L311fG	19	38	9.90000000001	-63	34	49.24	0.00140021952313	7.48493265504e-08	4.22736240804e-08	31.7525704246	1300000000.0	-5.46703674581	0.0	0.0	0.0
cj293G	19	35	3.84	-63	31	59.59	0.000724087007771	7.49804868922e-08	4.22625204203e-08	32.4464573825	1300000000.0	-2.47416579133	0.0	0.0	0.0
W292mG	19	35	36.92	-63	35	31.14	0.00141586019266	7.48734388993e-08	4.2259222375e-08	32.3234910969	1300000000.0	-5.71330344611	0.0	0.0	0.0
B191aG	19	39	13.18	-63	54	45.53	0.0150334680307	7.48183395744e-08	4.23684851037e-08	31.5165741044	1300000000.0	-2.40857764241	0.0	0.0	0.0
C291oG	19	37	21.2	-63	37	10.3	0.000738286824736	7.49094972684e-08	4.21325657276e-08	31.9344364505	1300000000.0	-6.44837187782	0.0	0.0	0.0
ck262G	19	35	25.21	-63	47	37.45	0.00072478929734	7.48744511819e-08	4.22444650747e-08	32.36875123	1300000000.0	-0.531646599468	0.0	0.0	0.0
J023uG	19	40	50.01	-63	12	52.87	0.000949994795888	7.4804445359e-08	4.23677614092e-08	31.1561303519	1300000000.0	-5.0510885781	0.0	0.0	0.0
ce024bG	19	41	44.11	-63	0	32.88	0.0007285692069	7.48388394977e-08	4.23379070348e-08	30.9557866872	1300000000.0	-6.88523014418	0.0	0.0	0.0
ce024cG	19	41	44.68	-63	0	34.6	0.000916922685909	7.48518128361e-08	4.22273679632e-08	30.9536888329	1300000000.0	-6.70229688454	0.0	0.0	0.0
cn001G	19	39	22.26	-63	30	32.56	0.00065305629945	7.48496630665e-08	4.23165972484e-08	31.4825461074	1300000000.0	0.505524295913	0.0	0.0	0.0
F301jG	19	37	29.11	-63	36	14.85	0.000506723086793	7.47805746149e-08	4.22480482121e-08	31.9048430625	1300000000.0	-5.41474470086	0.0	0.0	0.0
bx073aG	19	44	22.7	-63	28	49.22	0.000667670151642	7.48248148325e-08	4.22598882093e-08	30.3624396489	1300000000.0	-3.15275847031	0.0	0.0	0.0
W292nG	19	35	37.32	-63	35	22.36	0.000873210282317	7.47654128326e-08	4.2302315158e-08	32.3219645487	1300000000.0	-4.12992503587	0.0	0.0	0.0
Q234bG	19	33	54.93	-64	12	43.5	0.00140320034992	7.47874732066e-08	4.23025619294e-08	32.7106823948	1300000000.0	-4.4671593382	0.0	0.0	0.0
bv262aG	19	35	51.95	-63	46	0.830000000016	0.000755904283719	7.48163150104e-08	4.22954452709e-08	32.2685994366	1300000000.0	-4.30510667764	0.0	0.0	0.0
W292oG	19	35	36.09	-63	34	55.32	0.000594041224783	7.47977555967e-08	4.22550281925e-08	32.3265262896	1300000000.0	-4.88827434585	0.0	0.0	0.0
W292pG	19	35	36.17	-63	35	0.190000000002	0.000753294544473	7.48001244128e-08	4.2302315158e-08	32.326221185	1300000000.0	-5.47011834512	0.0	0.0	0.0
co314G	19	34	19.56	-63	9	51.48	0.000354418505959	7.48542298574e-08	4.22461381743e-08	32.6079791761	1300000000.0	-8.85008097321	0.0	0.0	0.0
J023vG	19	40	51.77	-63	13	7.81	0.000905176773625	7.48260018877e-08	4.22778032389e-08	31.1495745272	1300000000.0	-4.97593245826	0.0	0.0	0.0
ak194cG	19	38	28.55	-64	30	56.05	0.000734467329436	7.48734697605e-08	4.22934893264e-08	31.6846896781	1300000000.0	-3.81889161112	0.0	0.0	0.0

co314aG	19	34	20.62	-63	9	46.79	0.000394810485334	7.48284355111e-08	4.22169958969e-08	32.604033159	1300000000.0	-9.55968290215	0.0	0.0	0.0
cd314aG	19	34	19.36	-63	8	48.67	0.00063263277564	7.47583964623e-08	4.22838419572e-08	32.6085570018	1300000000.0	-7.89058192909	0.0	0.0	0.0
bv262bG	19	35	51.01	-63	46	2.88	0.000864464636195	7.48271435893e-08	4.22954452709e-08	32.272132095	1300000000.0	-4.32037287999	0.0	0.0	0.0
cp331G	19	38	9.04000000001	-63	26	31.69	0.000705458255442	7.49716005532e-08	4.23145106047e-08	31.755424732	1300000000.0	-0.604086220009	0.0	0.0	0.0
av041aG	19	41	9.48	-63	31	16.51	0.000906648143701	7.48241008381e-08	4.2291036131e-08	31.0826492374	1300000000.0	-4.6796217795	0.0	0.0	0.0
Y321qG	19	38	15.05	-63	33	31.24	0.0010947096269	7.48535100136e-08	4.23196178198e-08	31.7333054727	1300000000.0	-6.91272657049	0.0	0.0	0.0
F301kG	19	37	31.97	-63	35	52.01	0.000835796635736	7.48745350093e-08	4.22729867621e-08	31.8941816045	1300000000.0	-5.2369385226	0.0	0.0	0.0
am165bG	19	42	11.62	-64	31	11.89	0.000870191110988	7.48870938217e-08	4.22618937921e-08	30.8455591942	1300000000.0	-6.53721244929	0.0	0.0	0.0
cq312G	19	36	11.93	-63	25	11.63	0.000955654322885	7.48506325394e-08	4.23295714004e-08	32.1917733677	1300000000.0	-2.56735980307	0.0	0.0	0.0
ae103bG	19	44	43.7	-63	49	18.91	0.000891160660021	7.48508978943e-08	4.22420939933e-08	30.280637765	1300000000.0	-5.1385253733	0.0	0.0	0.0
cc182aG	19	39	13.79	-64	6	26.07	0.000702159661973	7.48208268897e-08	4.22451028232e-08	31.5143598223	1300000000.0	-2.55860466861	0.0	0.0	0.0
av041bG	19	41	9.97	-63	31	8.73000000001	0.000602246266686	7.48628011157e-08	4.22930351995e-08	31.0808501384	1300000000.0	-6.32027035019	0.0	0.0	0.0
cr305G	19	31	44.49	-63	13	28.96	0.000804410696084	7.48277662288e-08	4.22975580388e-08	33.1853821417	1300000000.0	-6.69503844709	0.0	0.0	0.0
J023wG	19	40	54.79	-63	13	17.91	0.000785533128749	7.48313788808e-08	4.22285710092e-08	31.138302583	1300000000.0	-6.21280362298	0.0	0.0	0.0
cs135G	19	45	36.71	-64	17	7.64999999999	0.000670001570584	7.48093702278e-08	4.22903444367e-08	30.0768783684	1300000000.0	-4.59164449558	0.0	0.0	0.0
T173aG	19	40	42.91	-64	21	15.76	0.000640388572886	7.4885267634e-08	4.22822234483e-08	31.1796613805	1300000000.0	-3.9229232869	0.0	0.0	0.0
ct221G	19	37	40.83	-63	57	47.33	0.000559788426889	7.48294510306e-08	4.23251685259e-08	31.8623251381	1300000000.0	0.416996577211	0.0	0.0	0.0
W292qG	19	35	38.25	-63	35	35.14	0.00108004109592	7.489939738e-08	4.23263103283e-08	32.3185448066	1300000000.0	-4.83129907873	0.0	0.0	0.0
J023xG	19	40	53.87	-63	13	8.20999999999	0.000667035001782	7.48868329717e-08	4.23209049825e-08	31.1417579269	1300000000.0	-7.07750414709	0.0	0.0	0.0
J023yG	19	40	50.51	-63	13	2.31	0.000765933467774	7.48652554326e-08	4.23383262314e-08	31.1542552569	1300000000.0	-6.4838782416	0.0	0.0	0.0
bt056bG	19	46	29.57	-63	4	26.32	0.000793310299082	7.48267219962e-08	4.23466276351e-08	29.8950263774	1300000000.0	-7.48843434072	0.0	0.0	0.0
F301lG	19	37	31.33	-63	36	7.94	0.000508242006083	7.47632154242e-08	4.22472192725e-08	31.8965678466	1300000000.0	-6.87732388894	0.0	0.0	0.0
cq312aG	19	36	11.09	-63	25	24.99	0.000691831020532	7.4837451186e-08	4.22516333727e-08	32.1949205394	1300000000.0	-2.79370136179	0.0	0.0	0.0
J023zG	19	40	56.46	-63	13	15.69	0.000453076032558	7.48766634916e-08	4.2284540734e-08	31.1320939085	1300000000.0	-7.45662054733	0.0	0.0	0.0
W292rG	19	35	37.36	-63	36	36.18	0.000670447299823	7.48293730658e-08	4.23542274748e-08	32.3219747184	1300000000.0	-0.849981187185	0.0	0.0	0.0
J023aaG	19	40	51.06	-63	12	50.59	0.0018753433296	7.48424402291e-08	4.23034990276e-08	31.1522133577	1300000000.0	-4.99838568307	0.0	0.0	0.0
co314bG	19	34	20.04	-63	9	42.82	0.000426155637982	7.48542298574e-08	4.22727076416e-08	32.606166121	1300000000.0	-9.28000472833	0.0	0.0	0.0
F301mG	19	37	30.64	-63	36	7.60000000001	0.000680409489266	7.4898172979e-08	4.22917998878e-08	31.8991521188	1300000000.0	-5.14113145407	0.0	0.0	0.0
cu232G	19	37	4.75999999999	-63	55	57.14	0.000807729831723	7.48308235039e-08	4.22752878854e-08	31.9972410262	1300000000.0	-2.58702340254	0.0	0.0	0.0
bd045aG	19	45	9.7	-63	0	12.08	0.000869454469288	7.48468176302e-08	4.23527381839e-08	30.1925281994	1300000000.0	-4.87866927844	0.0	0.0	0.0
cv172G	19	40	6.41	-64	12	19.55	0.000658019441865	7.48757425063e-08	4.23864222805e-08	31.3169635053	1300000000.0	-1.55064954261	0.0	0.0	0.0
ah023bG	19	41	15.53	-63	12	51.84	0.000814645798134	7.48419068307e-08	4.2338027414e-08	31.0611885224	1300000000.0	-4.66938355281	0.0	0.0	0.0
av041cG	19	41	9.75	-63	30	21.08	0.000911537450839	7.48375308941e-08	4.23204089416e-08	31.0817045664	1300000000.0	-4.92623891266	0.0	0.0	0.0
cw273G	19	34	12.62	-63	40	41.7	0.000616717895948	7.48097145907e-08	4.22886145702e-08	32.6389269054	1300000000.0	-3.54505209417	0.0	0.0	0.0

W292sG	19	35	37.4	-63	35	26.82	0.000627090296537	7.48922738687e-08	4.22675082976e-08	32.3217019164	1300000000.0	-6.84998672751	0.0	0.0	0.0
av041dG	19	41	9.49000000001	-63	30	15.49	0.000313829816714	7.48610805066e-08	4.23059177997e-08	31.0826744609	1300000000.0	-7.15550954301	0.0	0.0	0.0
bv262cG	19	35	51.4	-63	46	1.45999999999	0.000810324634176	7.48423436658e-08	4.23436879423e-08	32.2706591575	1300000000.0	-5.08783002211	0.0	0.0	0.0
bt056cG	19	46	27.98	-63	4	17.7	0.000446287086995	7.48387466524e-08	4.22632846925e-08	29.9009569561	1300000000.0	-7.43247090598	0.0	0.0	0.0
bv262dG	19	35	50.44	-63	46	28.09	0.000781716759212	7.48822478163e-08	4.23180006792e-08	32.2743131252	1300000000.0	-3.9085383164	0.0	0.0	0.0
J023abG	19	40	50.91	-63	13	5.11000000002	0.000866220422175	7.48203084503e-08	4.23246578216e-08	31.1527457528	1300000000.0	-6.25174594916	0.0	0.0	0.0
J023acG	19	40	56.19	-63	13	10.52	0.000403896661928	7.48313788808e-08	4.22678925227e-08	31.1331084358	1300000000.0	-7.01123464241	0.0	0.0	0.0
cx246G	19	31	16.38	-64	11	44.38	0.000662000563539	7.48418639135e-08	4.22718442947e-08	33.3052119547	1300000000.0	-4.49301740626	0.0	0.0	0.0
N284bG	19	32	56.18	-63	33	48.83	0.00120937352776	7.47890322645e-08	4.22159679831e-08	32.9229476942	1300000000.0	-6.67764318014	0.0	0.0	0.0
W292tG	19	35	35.54	-63	35	31.18	0.000430405797914	7.4806710782e-08	4.22017516357e-08	32.3286531452	1300000000.0	-6.00727018873	0.0	0.0	0.0
F301nG	19	37	29.9	-63	36	10.61	0.000432882571486	7.48568554336e-08	4.23090708278e-08	31.9018905325	1300000000.0	-5.66380286497	0.0	0.0	0.0
O353bG	19	38	27.88	-63	5	49.99	0.00303481409478	7.48886238898e-08	4.22639721767e-08	31.6845952176	1300000000.0	-3.83638088762	0.0	0.0	0.0
av041eG	19	41	9.53	-63	31	12.57	0.000745357937764	7.48193970658e-08	4.22946579443e-08	31.0824974174	1300000000.0	-5.88758381605	0.0	0.0	0.0
cd314bG	19	34	19.64	-63	8	57.62	0.00028981701847	7.48247738765e-08	4.22809316197e-08	32.6075240735	1300000000.0	-9.92837936717	0.0	0.0	0.0
C291pG	19	37	20.37	-63	37	23.34	0.000729988928706	7.48030233279e-08	4.23033847485e-08	31.93756149	1300000000.0	-5.44042918129	0.0	0.0	0.0
cy093G	19	45	13.72	-63	45	9.75	0.000589378223481	7.48211512684e-08	4.23141446181e-08	30.1691801895	1300000000.0	-0.766545003617	0.0	0.0	0.0
co314cG	19	34	21.88	-63	9	52.84	0.000272339335636	7.48340630717e-08	4.22234749042e-08	32.599360201	1300000000.0	-10.319594081	0.0	0.0	0.0
by043aG	19	42	55.66	-63	18	31.24	0.000587177122739	7.48678900344e-08	4.22386721392e-08	30.6880830198	1300000000.0	-5.94553190734	0.0	0.0	0.0
co314dG	19	34	19.92	-63	9	46.14	0.000385710851839	7.48538640252e-08	4.23410511011e-08	32.6065973166	1300000000.0	-9.91977949712	0.0	0.0	0.0
F301oG	19	37	29.86	-63	36	17.71	0.000498131224465	7.48658455775e-08	4.22775567106e-08	31.9020512752	1300000000.0	-4.91717886018	0.0	0.0	0.0
ad355aG	19	38	30.48	-62	51	56.73	0.00190996334738	7.48514669154e-08	4.2310483804e-08	31.6744973719	1300000000.0	-4.66927207438	0.0	0.0	0.0
av041fG	19	41	10.04	-63	31	15.19	0.000507113326409	7.4834644703e-08	4.22577568823e-08	31.0805800353	1300000000.0	-5.60176310279	0.0	0.0	0.0
J023adG	19	40	53.06	-63	13	8.72	0.000413488571097	7.48134225246e-08	4.22861203997e-08	31.1447764977	1300000000.0	-6.20248617026	0.0	0.0	0.0
Y321rG	19	38	12.59	-63	33	49.06	0.000234207460769	7.48714567557e-08	4.2298577771e-08	31.7424842991	1300000000.0	-9.86308456943	0.0	0.0	0.0
cz235G	19	33	35.77	-64	18	58.86	0.000503005148388	7.48804941696e-08	4.23057551063e-08	32.7837322862	1300000000.0	-5.00226588261	0.0	0.0	0.0
C291qG	19	37	22.92	-63	37	4.83000000002	0.000315237541788	7.48416131973e-08	4.22713465151e-08	31.9280045374	1300000000.0	-6.11311195379	0.0	0.0	0.0
F301pG	19	37	28.28	-63	36	17.83	0.000237647215658	7.47518558205e-08	4.22875108907e-08	31.907964964	1300000000.0	-7.43013243948	0.0	0.0	0.0
W292uG	19	35	36.17	-63	35	30.56	0.000373063818274	7.47714140039e-08	4.22886750237e-08	32.3263028101	1300000000.0	-7.43569710931	0.0	0.0	0.0
da321G	19	37	42.25	-63	30	50.83	0.000432803544026	7.4798577417e-08	4.21743210836e-08	31.855513736	1300000000.0	-2.14300269485	0.0	0.0	0.0
ae103cG	19	44	40.74	-63	49	13.37	0.00051984995198	7.48172428602e-08	4.23140861374e-08	30.2917385086	1300000000.0	-2.43988067502	0.0	0.0	0.0
ca054aG	19	44	17.33	-63	17	31.34	0.00131304908227	7.48350964716e-08	4.22084364313e-08	30.3842302816	1300000000.0	-3.18221732708	0.0	0.0	0.0
db265G	19	31	50.96	-63	51	53.46	0.000514490703941	7.48367940282e-08	4.22658472882e-08	33.1706973337	1300000000.0	-3.94715510449	0.0	0.0	0.0
co314eG	19	34	21.32	-63	9	50.75	0.00026087820846	7.48472625378e-08	4.22937869085e-08	32.6014270862	1300000000.0	-10.710077076	0.0	0.0	0.0
J023aeG	19	40	51.3	-63	13	6.64999999999	0.000872899236063	7.48224003653e-08	4.22724490658e-08	31.1513189061	1300000000.0	-5.77803352157	0.0	0.0	0.0

dc061G	19	41	58.43	-63	33	14.05	0.000543694116945	7.48649452545e-08	4.22440786968e-08	30.8999498032	1300000000.0	-0.547783060798	0.0	0.0	0.0
dd034G	19	43	18.81	-63	0	27.88	0.000610951503467	7.48350274911e-08	4.22495408054e-08	30.6042048451	1300000000.0	-2.87769399534	0.0	0.0	0.0
ce024dG	19	41	44.17	-63	0	37.45	0.000746189045686	7.48840902719e-08	4.21987129187e-08	30.9555664211	1300000000.0	-6.88146911986	0.0	0.0	0.0
N284cG	19	32	54.99	-63	33	56.84	0.0011355814025	7.48031670439e-08	4.22386663195e-08	32.9274401958	1300000000.0	-6.79267056362	0.0	0.0	0.0
cd314cG	19	34	19.17	-63	8	43.11	0.000358618046523	7.48542298574e-08	4.23020908543e-08	32.6092496565	1300000000.0	-8.58827990541	0.0	0.0	0.0
av041gG	19	41	9.28	-63	31	7.98999999999	0.000296444139116	7.48316769343e-08	4.23083383701e-08	31.0834147077	1300000000.0	-8.04318945285	0.0	0.0	0.0
F301qG	19	37	30.55	-63	36	12.94	0.000355723558855	7.48050946953e-08	4.22526138765e-08	31.8994697558	1300000000.0	-4.88816649656	0.0	0.0	0.0
Y321sG	19	38	13.37	-63	33	56.85	0.000114979481466	7.48583018365e-08	4.23075787853e-08	31.7395988218	1300000000.0	-10.7723119877	0.0	0.0	0.0
df212G	19	37	25.8	-64	1	37.47	0.000489716759004	7.48498408479e-08	4.22620128367e-08	31.9188250083	1300000000.0	-0.904837548108	0.0	0.0	0.0
ak194dG	19	38	28.98	-64	30	31.77	0.000784896285874	7.48439563207e-08	4.23309902736e-08	31.6830315809	1300000000.0	-6.69405647428	0.0	0.0	0.0
cd314dG	19	34	19.88	-63	8	52.55	0.000215522582786	7.48579261728e-08	4.23609191577e-08	32.6066311475	1300000000.0	-10.2510189932	0.0	0.0	0.0
az055bG	19	45	17.22	-63	9	15.27	0.00092529452667	7.48383189933e-08	4.23252773256e-08	30.1628784001	1300000000.0	-5.65993955637	0.0	0.0	0.0
cd314eG	19	34	19.13	-63	8	53.13	0.000394308171028	7.48416239266e-08	4.22734829718e-08	32.6093943284	1300000000.0	-9.5469585562	0.0	0.0	0.0
cw273aG	19	34	12.27	-63	40	38.49	0.000519158690542	7.48261806014e-08	4.22638155259e-08	32.6402482875	1300000000.0	-4.11962218282	0.0	0.0	0.0
C291rG	19	37	23.18	-63	36	59.87	0.000424892393868	7.4903236522e-08	4.22531029563e-08	31.9270580164	1300000000.0	-4.66094014793	0.0	0.0	0.0
dg143G	19	42	20.41	-64	6	4.64000000001	0.000497719947578	7.48131333794e-08	4.22736318336e-08	30.81486396	1300000000.0	-2.66418560643	0.0	0.0	0.0
N284dG	19	32	55.44	-63	33	49.01	0.00180111041277	7.4859650357e-08	4.22650314931e-08	32.9257313591	1300000000.0	-5.78571994797	0.0	0.0	0.0
co314fG	19	34	21.51	-63	9	57.54	0.000209779575718	7.48152379805e-08	4.23162281817e-08	32.6007281252	1300000000.0	-10.5232884885	0.0	0.0	0.0
C291sG	19	37	19.6	-63	37	4.19	0.000296813922032	7.48463847624e-08	4.22531273908e-08	31.9404111931	1300000000.0	-5.8905434159	0.0	0.0	0.0
L311gG	19	38	11.14	-63	34	34.34	0.000203587207583	7.48296006088e-08	4.22669918563e-08	31.7479117235	1300000000.0	-9.47826882241	0.0	0.0	0.0
co314gG	19	34	19.6	-63	9	39.44	0.000286196279065	7.48063101044e-08	4.23153436479e-08	32.6077973649	1300000000.0	-8.91438284115	0.0	0.0	0.0
dh072G	19	43	9.84	-63	35	50.32	0.000477470014872	7.48757046424e-08	4.22686156009e-08	30.6332301115	1300000000.0	-1.1177096517	0.0	0.0	0.0
ag204aG	19	36	21.54	-64	26	1.27000000002	0.000457893601085	7.48207629337e-08	4.22402833937e-08	32.1619510137	1300000000.0	-5.99401575895	0.0	0.0	0.0
cd314fG	19	34	19.23	-63	9	12.43	0.000372302892861	7.47739063868e-08	4.22635301408e-08	32.609092518	1300000000.0	-9.10923249095	0.0	0.0	0.0
co314hG	19	34	21.4	-63	9	46.28	0.000271192529242	7.48185369243e-08	4.22769237156e-08	32.601110766	1300000000.0	-9.61805326434	0.0	0.0	0.0
J023afG	19	40	52.49	-63	13	5.94	0.000500122672794	7.48430927391e-08	4.22853286364e-08	31.1468954797	1300000000.0	-6.25896279928	0.0	0.0	0.0
ce024eG	19	41	44.76	-63	0	30.06	0.000371788434936	7.47942620477e-08	4.22902436847e-08	30.9533919205	1300000000.0	-8.33586344555	0.0	0.0	0.0
dj123G	19	43	58.67	-63	57	48.83	0.000432186258143	7.4934241753e-08	4.22927019634e-08	30.4477598551	1300000000.0	-0.565299994554	0.0	0.0	0.0
bt056dG	19	46	27.14	-63	4	13.48	0.000765837268815	7.48677287126e-08	4.23124765314e-08	29.9041096434	1300000000.0	-6.90178000529	0.0	0.0	0.0
J023agG	19	40	54.62	-63	13	7.64000000001	0.000672450158734	7.48624944299e-08	4.23185083658e-08	31.1389537968	1300000000.0	-7.45505347028	0.0	0.0	0.0
W292vG	19	35	35.88	-63	35	36.0	0.000393527311962	7.49087436088e-08	4.22758026748e-08	32.3273631529	1300000000.0	-7.45007187577	0.0	0.0	0.0
W292wG	19	35	38.53	-63	35	28.86	0.00041290831532	7.48505841536e-08	4.23098815132e-08	32.3174786556	1300000000.0	-6.84832712023	0.0	0.0	0.0
J023ahG	19	40	55.52	-63	13	10.61	0.000453907507302	7.47901015645e-08	4.23677614092e-08	31.1356227836	1300000000.0	-7.69748725277	0.0	0.0	0.0
F301rG	19	37	30.58	-63	36	19.16	0.000349674045469	7.48376815511e-08	4.22825056066e-08	31.8993651993	1300000000.0	-4.82351511976	0.0	0.0	0.0

av041hG	19	41	9.34	-63	30	30.64	0.000231496070926	7.4815110935e-08	4.22606928581e-08	31.0832092153	1300000000.0	-7.23930375359	0.0	0.0	0.0
J023aiG	19	40	57.25	-63	13	15.45	0.000291004266469	7.48802694074e-08	4.21565716071e-08	31.1291553507	1300000000.0	-6.10722789972	0.0	0.0	0.0
C291tG	19	37	21.41	-63	37	22.7	0.00301677950579	7.48688496403e-08	4.23402305622e-08	31.9336799106	1300000000.0	-4.58956313365	0.0	0.0	0.0
J023ajG	19	40	56.85	-63	13	11.52	0.000344523383984	7.48218396651e-08	4.24138145721e-08	31.1306705811	1300000000.0	-7.76725959146	0.0	0.0	0.0
V132aG	19	42	23.27	-63	56	28.81	0.000944781231434	7.48707241635e-08	4.23338824596e-08	30.8050468399	1300000000.0	-5.90739796661	0.0	0.0	0.0
ad355bG	19	38	30.93	-62	52	0.929999999993	0.00145691630323	7.47899324058e-08	4.22612718079e-08	31.6728476303	1300000000.0	-5.21651941371	0.0	0.0	0.0
bv262eG	19	35	50.72	-63	46	20.16	0.000425778436935	7.47980857719e-08	4.22704393315e-08	32.2732177023	1300000000.0	-4.01071322319	0.0	0.0	0.0
L311hG	19	38	11.89	-63	34	25.26	4.76463495135e-06	7.48385782605e-08	4.22525750912e-08	31.7451389296	1300000000.0	-16.8503993561	0.0	0.0	0.0
cr305aG	19	31	44.83	-63	13	27.42	0.000663266469877	7.48978174264e-08	4.23323556764e-08	33.1841215087	1300000000.0	-7.13052852096	0.0	0.0	0.0
L311iG	19	38	11.33	-63	34	29.95	0.00028948471695	7.47210067303e-08	4.23333157291e-08	31.7472146426	1300000000.0	-7.75278329215	0.0	0.0	0.0
by043bG	19	42	56.1	-63	18	29.92	0.000478803063188	7.48397775789e-08	4.22583137678e-08	30.6864662021	1300000000.0	-6.1136602374	0.0	0.0	0.0
dk234G	19	34	21.69	-64	6	1.01000000001	0.000353408916494	7.48682586436e-08	4.23581998218e-08	32.6091788879	1300000000.0	-2.97315369671	0.0	0.0	0.0
W292xG	19	35	36.65	-63	34	56.66	0.000380234516404	7.48893433961e-08	4.22986459588e-08	32.3244073308	1300000000.0	-6.60202416859	0.0	0.0	0.0
Y321tG	19	38	14.97	-63	33	50.92	0.000306774362582	7.48696803111e-08	4.23167052956e-08	31.7336200082	1300000000.0	-7.07167600993	0.0	0.0	0.0
ce024fG	19	41	44.02	-63	0	28.53	0.000372734078983	7.48074247232e-08	4.23371170142e-08	30.9561295535	1300000000.0	-6.7552562401	0.0	0.0	0.0
dl075G	19	47	23.6	-63	21	54.81	0.000449172776324	7.48619053532e-08	4.23052705089e-08	29.6898301797	1300000000.0	-3.75070750881	0.0	0.0	0.0
dm235G	19	32	39.07	-64	21	21.22	0.000423027208751	7.48788168632e-08	4.2347830002e-08	32.997136247	1300000000.0	-3.85198920277	0.0	0.0	0.0
W292yG	19	35	36.82	-63	35	1.92000000001	0.000368709332	7.48767317771e-08	4.22932448269e-08	32.3238127624	1300000000.0	-7.5526996473	0.0	0.0	0.0
V132bG	19	42	23.31	-63	56	33.7	0.000447919745974	7.48791880449e-08	4.22742164211e-08	30.8048880514	1300000000.0	-6.99514980718	0.0	0.0	0.0
C291uG	19	37	21.48	-63	37	16.93	0.000226761185159	7.48176754586e-08	4.22880394824e-08	31.9334084303	1300000000.0	-8.39137903966	0.0	0.0	0.0
L311jG	19	38	10.55	-63	34	51.48	0.000312514515869	7.47915830017e-08	4.23109737641e-08	31.7501573401	1300000000.0	-4.66051567332	0.0	0.0	0.0
am165cG	19	42	11.81	-64	31	2.94	0.000570206901188	7.49029932312e-08	4.22847872215e-08	30.8448553463	1300000000.0	-6.84387308969	0.0	0.0	0.0
do113G	19	44	28.86	-63	51	35.97	0.0003592892019	7.4907644499e-08	4.22022482947e-08	30.3357663953	1300000000.0	-2.23566126469	0.0	0.0	0.0
cz235aG	19	33	33.63	-64	19	4.30000000002	0.000376089964097	7.48406736063e-08	4.23443330978e-08	32.7917685347	1300000000.0	-6.97783353802	0.0	0.0	0.0
C291vG	19	37	24.27	-63	37	5.45999999999	0.000246784153886	7.48679607357e-08	4.2227403667e-08	31.9229774679	1300000000.0	-5.97795531424	0.0	0.0	0.0
cd314gG	19	34	19.62	-63	9	5.38	0.000109387867147	7.48800398298e-08	4.22975282059e-08	32.6076017775	1300000000.0	-12.1486026791	0.0	0.0	0.0
V132cG	19	42	24.12	-63	56	30.86	0.000215130043473	7.47622152258e-08	4.22837594055e-08	30.8018485061	1300000000.0	-8.04294135058	0.0	0.0	0.0
dq053G	19	43	33.28	-63	16	40.16	0.000312799507492	7.48506673509e-08	4.22593189352e-08	30.5482963543	1300000000.0	-0.910072898008	0.0	0.0	0.0
C291wG	19	37	23.88	-63	37	10.81	0.000234086038874	7.47560552607e-08	4.22967134093e-08	31.924457284	1300000000.0	-6.55823742263	0.0	0.0	0.0
J023akG	19	40	52.91	-63	13	1.97	0.00035630683138	7.48349834749e-08	4.23238598097e-08	31.1453166595	1300000000.0	-6.51085007896	0.0	0.0	0.0
av041iG	19	41	9.11	-63	30	18.59	0.00029682624128	7.48574272553e-08	4.23212132141e-08	31.0840894775	1300000000.0	-7.49546313805	0.0	0.0	0.0
cz235bG	19	33	38.83	-64	18	53.16	0.000401435039286	7.48410797931e-08	4.23315028371e-08	32.772239012	1300000000.0	-6.67414763775	0.0	0.0	0.0
O353cG	19	38	27.75	-63	6	4.03	0.00089707926787	7.48279160294e-08	4.22296797216e-08	31.6850605485	1300000000.0	-4.88065142166	0.0	0.0	0.0
dv224G	19	35	22.28	-64	19	10.73	0.000371750118356	7.48748994272e-08	4.23054018272e-08	32.3838212522	1300000000.0	-2.19201032848	0.0	0.0	0.0

dw243G	19	35	18.55	-63	56	21.84	0.000324116040746	7.48174154618e-08	4.23466411798e-08	32.3947917543	1300000000.0	-1.78120170558	0.0	0.0	0.0
cd314hG	19	34	19.01	-63	8	59.15	0.000254198593273	7.47560589874e-08	4.23112169992e-08	32.6098826966	1300000000.0	-10.3196789221	0.0	0.0	0.0
F301sG	19	37	30.1	-63	36	4.73000000001	0.000315161456792	7.48533009335e-08	4.22488810143e-08	31.9011412145	1300000000.0	-6.00688398634	0.0	0.0	0.0
av041jG	19	41	9.02	-63	31	15.58	0.000328547834334	7.48190801266e-08	4.22698170853e-08	31.0843834454	1300000000.0	-5.78543624739	0.0	0.0	0.0
Y321uG	19	38	12.29	-63	33	46.06	0.000204485320219	7.48460381598e-08	4.23486426542e-08	31.7435945701	1300000000.0	-8.33177778644	0.0	0.0	0.0
dx303G	19	34	44.12	-63	25	3.29000000001	0.000282696400643	7.48990210473e-08	4.23612762293e-08	32.5189410089	1300000000.0	-0.10603802685	0.0	0.0	0.0
bv262fG	19	35	50.88	-63	46	13.23	0.000294217004876	7.49024849872e-08	4.2317450388e-08	32.2726388522	1300000000.0	-4.45570527047	0.0	0.0	0.0
Y321vG	19	38	12.89	-63	33	52.93	0.000158635777245	7.48774896985e-08	4.21907525787e-08	31.741367624	1300000000.0	-10.915910064	0.0	0.0	0.0
cd314iG	19	34	19.13	-63	9	2.39999999999	0.000177507583262	7.48214708272e-08	4.22507009422e-08	32.6094388344	1300000000.0	-10.7687828591	0.0	0.0	0.0
av041kG	19	41	8.82000000001	-63	30	24.72	0.000224607779076	7.4840817031e-08	4.23075276552e-08	31.0851754518	1300000000.0	-7.63325305427	0.0	0.0	0.0
dy235G	19	32	13.05	-64	15	42.74	0.00032765175452	7.48713228015e-08	4.22489698403e-08	33.0935912159	1300000000.0	-6.4242310161	0.0	0.0	0.0
am165dG	19	42	8.8	-64	30	47.04	0.000348835201302	7.48335022399e-08	4.22326021278e-08	30.8561746878	1300000000.0	-7.2493146549	0.0	0.0	0.0
C291xG	19	37	19.06	-63	37	7.55000000002	0.000421576534518	7.48631660286e-08	4.22887494279e-08	31.9424348175	1300000000.0	-4.78143255111	0.0	0.0	0.0
V132dG	19	42	22.28	-63	56	33.1	0.000861051275182	7.47879018138e-08	4.22074684906e-08	30.8087535679	1300000000.0	-5.58704790712	0.0	0.0	0.0
C291yG	19	37	21.81	-63	37	10.99	0.000195265048044	7.485241272e-08	4.22842849435e-08	31.9321515493	1300000000.0	-8.02324305553	0.0	0.0	0.0
L311kG	19	38	11.14	-63	34	24.8	7.37964346222e-07	7.49118756768e-08	4.22781893086e-08	31.7479231131	1300000000.0	-20.1317283262	0.0	0.0	0.0
V132eG	19	42	23.92	-63	56	27.43	0.000273741612202	7.48502156763e-08	4.22451540289e-08	30.8026259275	1300000000.0	-7.54200415614	0.0	0.0	0.0
co314iG	19	34	20.83	-63	9	56.82	0.0001084964232	7.48251356897e-08	4.22515205047e-08	32.6032771508	1300000000.0	-11.6690284943	0.0	0.0	0.0
av041lG	19	41	9.90000000001	-63	30	26.1	0.000477926114663	7.48095524862e-08	4.22553241064e-08	31.081124296	1300000000.0	-5.7412314723	0.0	0.0	0.0
bt056eG	19	46	30.34	-63	4	28.06	0.00059146559117	7.48289085605e-08	4.2379883113e-08	29.8921346909	1300000000.0	-7.20234321191	0.0	0.0	0.0
dz154G	19	42	16.23	-64	19	8.20999999999	0.000302590879835	7.47938967986e-08	4.22671434549e-08	30.8293031656	1300000000.0	-2.72129063355	0.0	0.0	0.0
ea075G	19	46	52.0	-63	19	24.63	0.000358237214329	7.48774741593e-08	4.22831392932e-08	29.8081166135	1300000000.0	-6.33540600606	0.0	0.0	0.0
W292zG	19	35	34.82	-63	35	32.18	0.000231065233919	7.49248109969e-08	4.22712348627e-08	32.3313155275	1300000000.0	-4.67947860299	0.0	0.0	0.0
av041mG	19	41	9.82000000001	-63	31	2.53	9.9493257592e-05	7.48382412567e-08	4.22892842043e-08	31.0814109626	1300000000.0	-10.1813949149	0.0	0.0	0.0
eb294G	19	33	20.08	-63	27	22.08	0.000273077738635	7.48242788993e-08	4.23320432674e-08	32.8325372732	1300000000.0	-1.77953804713	0.0	0.0	0.0
ea075aG	19	46	51.77	-63	19	21.55	0.000376463752487	7.48474593736e-08	4.23226780584e-08	29.8089667203	1300000000.0	-6.01713627318	0.0	0.0	0.0
L311lG	19	38	10.33	-63	34	36.54	2.65008760783e-05	7.48583018365e-08	4.22997663942e-08	31.7509522901	1300000000.0	-15.6716027564	0.0	0.0	0.0
C291zG	19	37	21.29	-63	37	1.73999999999	0.000242117485486	7.49421511251e-08	4.23252660972e-08	31.9340885048	1300000000.0	-5.55118582043	0.0	0.0	0.0
B191cG	19	39	12.95	-63	54	41.27	0.00932150783749	7.48219167616e-08	4.2210194043e-08	31.5174261199	1300000000.0	-3.12349379303	0.0	0.0	0.0
C291aaG	19	37	23.67	-63	37	4.42000000001	0.000142166176527	7.49355757855e-08	4.2240703559e-08	31.9252011377	1300000000.0	-8.05130695726	0.0	0.0	0.0
C291abG	19	37	21.57	-63	37	5.17999999999	0.000205405325421	7.48463847624e-08	4.23053355871e-08	31.9330416271	1300000000.0	-6.93383328561	0.0	0.0	0.0
ec065G	19	46	21.17	-63	15	7.72	0.000273695838041	7.48625673253e-08	4.22081770735e-08	29.92384766	1300000000.0	-4.6811597323	0.0	0.0	0.0
co314jG	19	34	20.74	-63	9	51.68	0.000168932570916	7.48786837976e-08	4.23377936227e-08	32.6035655572	1300000000.0	-11.4342923813	0.0	0.0	0.0
L311mG	19	38	10.44	-63	34	29.35	4.22047183427e-05	7.48427500625e-08	4.22835799614e-08	31.7505232013	1300000000.0	-11.4640298491	0.0	0.0	0.0

co314kG	19	34	20.19	-63	9	35.88	0.000115445293812	7.48664567315e-08	4.23033518205e-08	32.6055959681	1300000000.0	-10.5982832619	0.0	0.0	0.0
J023alG	19	40	52.76	-63	12	55.41	0.000171675659537	7.48068428802e-08	4.22419392011e-08	31.1458913092	1300000000.0	-9.08446923717	0.0	0.0	0.0
F301tG	19	37	28.49	-63	36	12.44	4.8510671358e-05	7.49433083321e-08	4.23173826177e-08	31.907159381	1300000000.0	-11.9711797081	0.0	0.0	0.0
J023amG	19	40	55.08	-63	13	21.29	0.000185187881333	7.48224003653e-08	4.21946179743e-08	31.1372223547	1300000000.0	-7.42138868538	0.0	0.0	0.0
co314lG	19	34	20.81	-63	9	43.04	0.000224872681125	7.48800398298e-08	4.23339881401e-08	32.603307327	1300000000.0	-10.6474098252	0.0	0.0	0.0
cd314jG	19	34	18.73	-63	9	14.85	0.000246547641668	7.48763516098e-08	4.23001038363e-08	32.6109716783	1300000000.0	-9.38236864404	0.0	0.0	0.0
cd314kG	19	34	20.2	-63	9	1.47	0.000109447366892	7.49299064209e-08	4.22665296902e-08	32.605438359	1300000000.0	-10.7521017934	0.0	0.0	0.0
ed316G	19	32	39.8	-62	59	7.23000000001	0.00030107184337	7.48335427531e-08	4.23207280193e-08	32.9765448181	1300000000.0	-5.04735972946	0.0	0.0	0.0
cq312bG	19	36	12.25	-63	25	11.85	0.000551032777689	7.48595831505e-08	4.22719819197e-08	32.1905846496	1300000000.0	-3.46874672192	0.0	0.0	0.0
cd314lG	19	34	18.63	-63	8	45.57	0.000379432046326	7.47940834768e-08	4.23211601644e-08	32.6112499873	1300000000.0	-8.07830104382	0.0	0.0	0.0
J023anG	19	40	52.25	-63	13	10.61	0.000249979550967	7.48600969397e-08	4.22906780789e-08	31.1477718371	1300000000.0	-6.8055793031	0.0	0.0	0.0
Y321wG	19	38	14.1	-63	33	52.98	0.000290320477209	7.48361747486e-08	4.2320441469e-08	31.7368751926	1300000000.0	-9.84880095021	0.0	0.0	0.0
J023aoG	19	40	50.19	-63	12	48.72	0.000443806475767	7.48771651261e-08	4.22521546561e-08	31.155435851	1300000000.0	-5.80790794553	0.0	0.0	0.0
cd314mG	19	34	19.5	-63	9	14.75	0.000309194764916	7.48612214842e-08	4.2284664753e-08	32.6080991622	1300000000.0	-8.47360160888	0.0	0.0	0.0
W292aaG	19	35	38.09	-63	35	27.4	0.000252637246882	7.48222534009e-08	4.21926049211e-08	32.3191199362	1300000000.0	-9.17801203392	0.0	0.0	0.0
L311nG	19	38	10.94	-63	34	40.17	4.56485219225e-05	7.48340630717e-08	4.23303971788e-08	31.7486679284	1300000000.0	-12.9353919035	0.0	0.0	0.0
ek213G	19	36	31.79	-64	13	58.96	0.000338116667426	7.47987746e-08	4.23161491786e-08	32.1223180275	1300000000.0	-2.48771970444	0.0	0.0	0.0
cd314nG	19	34	18.62	-63	8	55.97	0.000156563257213	7.48185200586e-08	4.23187240629e-08	32.6113163027	1300000000.0	-10.8004106992	0.0	0.0	0.0
F301uG	19	37	29.96	-63	36	26.56	0.000119411083897	7.47697954009e-08	4.22671419041e-08	31.9016916861	1300000000.0	-6.89598445681	0.0	0.0	0.0
F301vG	19	37	29.51	-63	36	21.92	0.00022440512256	7.48577475349e-08	4.22908032424e-08	31.9033715722	1300000000.0	-6.88185336981	0.0	0.0	0.0
cz235cG	19	33	34.56	-64	19	0.880000000005	0.000139036004551	7.48451682524e-08	4.23572314346e-08	32.7882707184	1300000000.0	-9.95787149402	0.0	0.0	0.0
em065G	19	46	44.94	-63	18	24.33	0.000258866457055	7.48919051589e-08	4.2315771588e-08	29.8346308936	1300000000.0	-5.23624581603	0.0	0.0	0.0
cz235dG	19	33	38.44	-64	18	51.14	0.000381386684723	7.48889895522e-08	4.22609817523e-08	32.7736847702	1300000000.0	-6.62764213697	0.0	0.0	0.0
bd045bG	19	45	9.90000000001	-63	0	10.17	0.000755773657372	7.48695159288e-08	4.23323421271e-08	30.1917761882	1300000000.0	-5.1930894397	0.0	0.0	0.0
bt056fG	19	46	29.4	-63	4	22.21	0.000320904399588	7.48354669942e-08	4.22247401587e-08	29.8956748808	1300000000.0	-8.31112821426	0.0	0.0	0.0
av041nG	19	41	9.18000000001	-63	30	53.37	0.000165539357693	7.48273888788e-08	4.22698170853e-08	31.0838093776	1300000000.0	-5.14291980148	0.0	0.0	0.0
co314mG	19	34	22.62	-63	9	51.67	0.000130816713616	7.48561890324e-08	4.22983484109e-08	32.5965993133	1300000000.0	-10.4812394218	0.0	0.0	0.0
eq154G	19	42	42.77	-64	20	34.0	0.000303052002326	7.47894389509e-08	4.226881682e-08	30.7294962251	1300000000.0	-2.23386186441	0.0	0.0	0.0
er115G	19	46	49.72	-64	2	5.86000000002	0.000364651445213	7.47824460915e-08	4.22718613525e-08	29.8063893695	1300000000.0	-2.4651213175	0.0	0.0	0.0
bt056gG	19	46	30.14	-63	4	24.18	0.000586838584411	7.4845050016e-08	4.2237643589e-08	29.8929059472	1300000000.0	-8.4315736531	0.0	0.0	0.0
es093G	19	44	42.96	-63	42	34.62	0.000280966915294	7.47895189294e-08	4.22906300284e-08	30.2845411965	1300000000.0	-2.12163831406	0.0	0.0	0.0
av041oG	19	41	8.59	-63	30	37.84	3.95488448523e-05	7.4834245051e-08	4.22946579443e-08	31.0860245335	1300000000.0	-7.27465393122	0.0	0.0	0.0
ak194eG	19	38	29.13	-64	30	43.72	0.000102680936146	7.48464147589e-08	4.23309902736e-08	31.6824716817	1300000000.0	-10.5279850255	0.0	0.0	0.0
F301wG	19	37	29.52	-63	36	1.92999999999	0.000158292692289	7.47650224548e-08	4.22891493483e-08	31.9033135569	1300000000.0	-6.13609675432	0.0	0.0	0.0

bl171aG	19	39	55.68	-63	58	12.45	0.000514608526926	7.48183842574e-08	4.22629791404e-08	31.3574625781	1300000000.0	-3.32173953174	0.0	0.0	0.0
cd314oG	19	34	18.85	-63	8	40.16	0.000289112413274	7.47715858346e-08	4.22296436317e-08	32.6104077004	1300000000.0	-6.90241982781	0.0	0.0	0.0
F301xG	19	37	29.23	-63	36	27.23	0.000143041150788	7.48826251087e-08	4.22826555993e-08	31.9044414847	1300000000.0	-6.26646508801	0.0	0.0	0.0
cd314pG	19	34	19.74	-63	9	10.42	0.000218482833414	7.48387052661e-08	4.22544491571e-08	32.6071863026	1300000000.0	-9.96121086725	0.0	0.0	0.0
W292abG	19	35	36.63	-63	35	15.7	0.000401493317561	7.48797012618e-08	4.22889590765e-08	32.324543084	1300000000.0	-7.42189353133	0.0	0.0	0.0
co314nG	19	34	22.07	-63	9	47.8	9.59368506306e-05	7.48499711185e-08	4.22806913112e-08	32.5986154535	1300000000.0	-12.09376841	0.0	0.0	0.0
fa134G	19	44	50.29	-64	15	51.53	0.00020522609981	7.49421723363e-08	4.22262549211e-08	30.2513587601	1300000000.0	-1.39222036501	0.0	0.0	0.0
co314oG	19	34	22.27	-63	9	56.41	0.000138881882762	7.48717161271e-08	4.2294255285e-08	32.5978978674	1300000000.0	-10.439052692	0.0	0.0	0.0
V132fG	19	42	23.19	-63	56	24.97	0.000290642289593	7.49368549035e-08	4.23090708278e-08	30.805335865	1300000000.0	-8.14785469407	0.0	0.0	0.0
F301yG	19	37	28.46	-63	36	26.06	8.97244874362e-05	7.48990575867e-08	4.23612762293e-08	31.9073032751	1300000000.0	-6.62470441156	0.0	0.0	0.0
F301zG	19	37	30.47	-63	36	0.040000000008	0.0001157536475718	7.48506533387e-08	4.22688121675e-08	31.8997688146	1300000000.0	-6.51322816667	0.0	0.0	0.0
bv262gG	19	35	50.58	-63	46	24.91	0.000433263742153	7.482056778e-08	4.23107909496e-08	32.2737545534	1300000000.0	-5.59469511561	0.0	0.0	0.0
av041pG	19	41	9.13	-63	31	3.80000000002	0.000100394637992	7.4889068549e-08	4.22867517069e-08	31.0839677904	1300000000.0	-8.93417641822	0.0	0.0	0.0
Y321xG	19	38	15.44	-63	33	46.98	0.000234991772165	7.49936693275e-08	4.22736240804e-08	31.7318546951	1300000000.0	-7.04783736877	0.0	0.0	0.0
co314pG	19	34	19.33	-63	9	35.26	0.000159767612559	7.48604666818e-08	4.22818385782e-08	32.6087933141	1300000000.0	-8.07111433333	0.0	0.0	0.0
cw273bG	19	34	12.3	-63	40	32.99	0.000209718279753	7.48939885097e-08	4.22110015802e-08	32.6401125846	1300000000.0	-5.32026870412	0.0	0.0	0.0
H154aG	19	43	16.93	-64	25	40.99	0.00352713312103	7.4876596738e-08	4.22657414373e-08	30.600554394	1300000000.0	-5.10588389647	0.0	0.0	0.0
cu232aG	19	37	4.71000000001	-63	56	0.420000000013	0.000386857677498	7.48164672434e-08	4.22353198501e-08	31.9974068152	1300000000.0	-4.44878354363	0.0	0.0	0.0
co314qG	19	34	19.22	-63	9	45.2	8.79273435179e-05	7.48664567315e-08	4.23066537855e-08	32.6092062221	1300000000.0	-11.3588045927	0.0	0.0	0.0
ag204bG	19	36	21.19	-64	25	58.6	0.00116079621806	7.48317689124e-08	4.22437687385e-08	32.163255192	1300000000.0	-5.3089126004	0.0	0.0	0.0
F301aaG	19	37	28.9	-63	36	20.64	9.71406115725e-05	7.48670775117e-08	4.22991093237e-08	31.9056598186	1300000000.0	-8.61999242957	0.0	0.0	0.0
co314rG	19	34	19.96	-63	9	54.32	9.73639136801e-05	7.48096094419e-08	4.22955370989e-08	32.6064740856	1300000000.0	-11.5353095454	0.0	0.0	0.0
W292acG	19	35	35.26	-63	35	36.39	0.000152697605073	7.48357718199e-08	4.22546574246e-08	32.3297055647	1300000000.0	-8.91524680012	0.0	0.0	0.0
cd314qG	19	34	18.01	-63	9	12.53	8.26931420333e-05	7.48697547318e-08	4.22780834886e-08	32.6136219077	1300000000.0	-9.18906564845	0.0	0.0	0.0
cz235eG	19	33	33.99	-64	18	59.85	0.000166481688724	7.4836255334e-08	4.2245435271e-08	32.790424218	1300000000.0	-9.01584899327	0.0	0.0	0.0
bv262hG	19	35	49.83	-63	46	27.08	0.000160104125543	7.49030792144e-08	4.22623622131e-08	32.2765605476	1300000000.0	-5.98981548975	0.0	0.0	0.0
av041sG	19	41	9.56	-63	30	48.79	1.17774326637e-06	7.48574272553e-08	4.2349802398e-08	31.0823818262	1300000000.0	-17.3111463606	0.0	0.0	0.0
cz235fG	19	33	37.6	-64	18	51.67	0.000113076620107	7.47704161069e-08	4.22574462487e-08	32.7768314129	1300000000.0	-7.33413375236	0.0	0.0	0.0
V132gG	19	42	20.74	-63	56	46.06	0.000167709433271	7.47466355673e-08	4.22916359777e-08	30.8145010027	1300000000.0	-1.56966144232	0.0	0.0	0.0
C291acG	19	37	22.35	-63	37	3.26000000001	4.28715222748e-05	7.47593480478e-08	4.22933130234e-08	31.930151649	1300000000.0	-10.4645378629	0.0	0.0	0.0
ah023cG	19	41	14.45	-63	12	45.19	0.000363124312817	7.48496674453e-08	4.22812622354e-08	31.0651961212	1300000000.0	-4.17097584614	0.0	0.0	0.0
av041tG	19	41	10.5	-63	31	10.24	5.91604521849e-05	7.48349589485e-08	4.22395198692e-08	31.0788528393	1300000000.0	-9.94912275175	0.0	0.0	0.0
cr305bG	19	31	44.88	-63	13	31.44	0.000197109895603	7.47788383074e-08	4.23075276552e-08	33.1839603907	1300000000.0	-8.79618054086	0.0	0.0	0.0
av041uG	19	41	8.63	-63	30	29.92	0.000135312760265	7.4844806755e-08	4.22553241064e-08	31.0858598673	1300000000.0	-8.29557784874	0.0	0.0	0.0

O353dG	19	38	27.79	-63	5	57.21	9.55048157009e-05	7.47866157656e-08	4.22839640405e-08	31.6849110573	1300000000.0	-8.06142892473	0.0	0.0	0.0
co314sG	19	34	19.86	-63	9	30.45	9.83046683018e-05	7.4783826878e-08	4.22681425968e-08	32.6067785951	1300000000.0	-9.03099027426	0.0	0.0	0.0
J023apG	19	40	49.89	-63	12	57.24	0.000381986927612	7.48235962196e-08	4.22521546561e-08	31.1565502484	1300000000.0	-7.8727142581	0.0	0.0	0.0
V132hG	19	42	22.58	-63	56	36.85	0.00025800801711	7.47663261902e-08	4.23161352368e-08	30.807597845	1300000000.0	-8.25957250653	0.0	0.0	0.0
V132iG	19	42	22.47	-63	56	29.0	0.00089518264992	7.49029811979e-08	4.22688121675e-08	30.8080484266	1300000000.0	-5.14012647938	0.0	0.0	0.0
cz235gG	19	33	38.92	-64	18	56.99	0.000207612512182	7.48597985615e-08	4.22491451647e-08	32.7718915348	1300000000.0	-7.20201779348	0.0	0.0	0.0
ce024hG	19	41	44.05	-63	0	10.59	0.000106829551213	7.48457462942e-08	4.2251480167e-08	30.9560590158	1300000000.0	-4.30165202702	0.0	0.0	0.0
bx073bG	19	44	21.21	-63	28	48.7	0.0001633367177	7.48559646351e-08	4.229388029e-08	30.3680097833	1300000000.0	-6.66156365454	0.0	0.0	0.0
by043eG	19	42	55.91	-63	18	25.56	0.000110137354806	7.48599437008e-08	4.22938477421e-08	30.6871808505	1300000000.0	-9.2871153698	0.0	0.0	0.0
by043fG	19	42	56.02	-63	18	33.97	0.000192979248918	7.47856270558e-08	4.22954379091e-08	30.6867708015	1300000000.0	-7.28274463982	0.0	0.0	0.0
co314tG	19	34	19.33	-63	9	28.61	7.97360452556e-05	7.49495786317e-08	4.22892256892e-08	32.6087740132	1300000000.0	-6.92559685221	0.0	0.0	0.0
C291adG	19	37	24.89	-63	37	0.679999999993	4.77554866242e-05	7.47820562409e-08	4.22759674216e-08	31.9206711651	1300000000.0	-7.89427139405	0.0	0.0	0.0
W292adG	19	35	36.28	-63	34	49.4	8.63242649808e-05	7.4806710782e-08	4.22932448269e-08	32.3257966025	1300000000.0	-9.12570442814	0.0	0.0	0.0
am165eG	19	42	11.51	-64	30	55.19	0.000199222178491	7.48418647893e-08	4.23723853377e-08	30.845982152	1300000000.0	-3.69917476092	0.0	0.0	0.0
am165fG	19	42	12.27	-64	31	7.55000000002	0.0007190549623	7.4836005694e-08	4.22710503256e-08	30.8430954373	1300000000.0	-6.79124306577	0.0	0.0	0.0
ci173aG	19	40	25.05	-64	14	28.2	0.00027794098091	7.4837653303e-08	4.23059243848e-08	31.2469911231	1300000000.0	-5.87984184186	0.0	0.0	0.0
C291aeG	19	37	25.09	-63	37	5.89999999999	3.97581286708e-05	7.48760103987e-08	4.22926109042e-08	31.9199200685	1300000000.0	-7.78901234378	0.0	0.0	0.0
J023aqG	19	40	55.82	-63	13	21.56	2.4555382041e-05	7.49089503464e-08	4.2238962348e-08	31.1344845226	1300000000.0	-13.3726174657	0.0	0.0	0.0
J023arG	19	40	55.3	-63	13	3.78	2.19947752997e-05	7.48571126663e-08	4.22248018679e-08	31.1364160508	1300000000.0	-14.2542618591	0.0	0.0	0.0
V132jG	19	42	23.8	-63	56	36.13	8.30758511236e-05	7.48297381417e-08	4.23289984177e-08	30.8030583524	1300000000.0	-10.204964357	0.0	0.0	0.0
co314uG	19	34	22.8	-63	9	57.43	9.49509029729e-05	7.48063101044e-08	4.22896628064e-08	32.5959501846	1300000000.0	-9.31274902788	0.0	0.0	0.0
bd045cG	19	45	11.27	-63	0	25.55	0.000172445449636	7.48369595773e-08	4.23655902513e-08	30.1866570723	1300000000.0	-8.72380360198	0.0	0.0	0.0
ci173bG	19	40	26.11	-64	14	20.0	4.62898202422e-05	7.48494097491e-08	4.23398547346e-08	31.2430099814	1300000000.0	-10.4121676307	0.0	0.0	0.0
am165gG	19	42	11.41	-64	31	17.39	0.000116726770563	7.47955137846e-08	4.2269038974e-08	30.8463356871	1300000000.0	-8.66469948591	0.0	0.0	0.0
W292aeG	19	35	35.68	-63	34	49.57	3.71699472318e-05	7.49114635297e-08	4.22550281925e-08	32.3280300907	1300000000.0	-9.59982833104	0.0	0.0	0.0
bt056hG	19	46	28.6	-63	4	22.07	0.00014261154235	7.48559646351e-08	4.22732534755e-08	29.8986391802	1300000000.0	-5.99538202034	0.0	0.0	0.0
cd314rG	19	34	18.76	-63	9	9.86000000002	6.68623599968e-05	7.49116759476e-08	4.22737419289e-08	32.6108377275	1300000000.0	-12.3767764256	0.0	0.0	0.0
bv262iG	19	35	52.85	-63	45	59.67	4.45266099491e-06	7.48836482093e-08	4.23491105026e-08	32.2652221175	1300000000.0	-13.9663276111	0.0	0.0	0.0
J023asG	19	40	55.87	-63	13	6.05000000002	7.20067236755e-05	7.48562345686e-08	4.23034990276e-08	31.1343061067	1300000000.0	-11.0039929653	0.0	0.0	0.0
bx073cG	19	44	22.16	-63	28	50.48	0.00013798206448	7.48469452787e-08	4.21675776368e-08	30.3644470271	1300000000.0	-8.22612693333	0.0	0.0	0.0
F301acG	19	37	27.65	-63	36	16.69	1.42414657628e-05	7.47261226304e-08	4.23045035088e-08	31.9103142838	1300000000.0	-13.2885570384	0.0	0.0	0.0
am165hG	19	42	11.75	-64	31	25.04	0.000109625689821	7.47970825343e-08	4.23275535376e-08	30.8450317676	1300000000.0	-5.19847242643	0.0	0.0	0.0
V132lG	19	42	21.5	-63	56	48.55	2.54811231958e-05	7.47887581444e-08	4.23986086089e-08	30.8116570232	1300000000.0	-9.41747483796	0.0	0.0	0.0
av041xG	19	41	9.48	-63	30	58.42	1.37648431495e-05	7.48379300907e-08	4.23424320477e-08	31.0826962387	1300000000.0	-12.6241595733	0.0	0.0	0.0

C291afG	19	37	23.1	-63	37	11.07	3.57855395137e-06	7.48688496403e-08	4.22380141183e-08	31.9273500116	1300000000.0	-18.5763823137	0.0	0.0	0.0
cd314sG	19	34	17.37	-63	9	13.59	0.000114962100984	7.48231809581e-08	4.23037333958e-08	32.6160247806	1300000000.0	-6.56026193695	0.0	0.0	0.0
co314vG	19	34	20.78	-63	9	38.47	3.69021953121e-05	7.48218361607e-08	4.23001038363e-08	32.603405548	1300000000.0	-14.4544781069	0.0	0.0	0.0
cz235hG	19	33	38.08	-64	18	55.76	0.000136771250459	7.48574193742e-08	4.22958765119e-08	32.7750415521	1300000000.0	-8.73603570034	0.0	0.0	0.0
Y321yG	19	38	12.64	-63	33	40.26	5.91748657783e-05	7.4825694613e-08	4.23303971788e-08	31.7422888788	1300000000.0	-10.959439839	0.0	0.0	0.0
ah023dG	19	41	15.59	-63	12	57.26	9.46783923427e-05	7.48581129103e-08	4.22564010914e-08	31.0609755229	1300000000.0	-7.38862289457	0.0	0.0	0.0
cd314tG	19	34	18.35	-63	9	19.19	6.75152375511e-05	7.48518986592e-08	4.22498852425e-08	32.612392781	1300000000.0	-10.7510958297	0.0	0.0	0.0
cz235iG	19	33	34.15	-64	19	5.16	0.000176142714306	7.48743084783e-08	4.22482759058e-08	32.7898312933	1300000000.0	-9.03066522331	0.0	0.0	0.0
F301adG	19	37	27.65	-63	36	22.38	1.06480018396e-05	7.4926602757e-08	4.22337041379e-08	31.9103207391	1300000000.0	-13.8578353847	0.0	0.0	0.0
V132mG	19	42	24.0	-63	56	40.34	4.39640536054e-05	7.48980434486e-08	4.22642482529e-08	30.8023040426	1300000000.0	-7.152213034	0.0	0.0	0.0
cw273cG	19	34	12.21	-63	40	27.81	7.65960917626e-06	7.48737315325e-08	4.22144179132e-08	32.6404514061	1300000000.0	-9.77181474313	0.0	0.0	0.0
ce024iG	19	41	43.75	-63	0	6.16	2.29845087404e-06	7.48484159572e-08	4.2246358508e-08	30.9571562781	1300000000.0	-11.1510257371	0.0	0.0	0.0
av041yG	19	41	10.63	-63	30	22.45	7.73189490538e-06	7.48062715481e-08	4.23120892254e-08	31.0784239611	1300000000.0	-13.0343639455	0.0	0.0	0.0
V132nG	19	42	20.07	-63	56	43.8	2.64997390387e-05	7.4816597134e-08	4.22854073096e-08	30.8170132769	1300000000.0	-7.06532692209	0.0	0.0	0.0
by043hG	19	42	55.25	-63	18	29.26	0.000185717582036	7.47997940275e-08	4.22416443573e-08	30.6896127734	1300000000.0	-7.26855326967	0.0	0.0	0.0
am165iG	19	42	10.94	-64	30	51.18	2.81345732051e-06	7.48176528978e-08	4.22361505752e-08	30.8481360972	1300000000.0	-10.408754647	0.0	0.0	0.0
am165kG	19	42	7.99000000001	-64	30	49.11	6.74075111092e-05	7.48277296546e-08	4.22205607936e-08	30.8592305457	1300000000.0	-8.04742911974	0.0	0.0	0.0
am165lG	19	42	11.35	-64	31	22.36	5.03438211886e-05	7.48646799494e-08	4.22555075487e-08	30.8465627447	1300000000.0	-7.93701773649	0.0	0.0	0.0
co314wG	19	34	23.29	-63	9	52.3	1.57145535725e-05	7.49041040047e-08	4.22673342126e-08	32.5941110672	1300000000.0	-13.078569248	0.0	0.0	0.0
V132oG	19	42	21.4	-63	56	35.79	7.64874655602e-07	7.47687768794e-08	4.23218745881e-08	30.8120499425	1300000000.0	-17.9677829099	0.0	0.0	0.0
cq312cG	19	36	10.84	-63	25	21.78	0.00011585420386	7.49868161491e-08	4.23167052956e-08	32.1958518436	1300000000.0	-6.78745563342	0.0	0.0	0.0
ca054bG	19	44	16.58	-63	17	33.59	0.000183123253801	7.48176623164e-08	4.23158269682e-08	30.3870090171	1300000000.0	-7.49423595297	0.0	0.0	0.0
dy235aG	19	32	12.63	-64	15	45.7	0.000102337221835	7.4914390512e-08	4.23781712095e-08	33.0951678037	1300000000.0	-9.15388004449	0.0	0.0	0.0
J023atG	19	40	56.63	-63	13	19.76	4.0396203241e-05	7.48379581198e-08	4.22815630044e-08	31.1314678283	1300000000.0	-11.5554293435	0.0	0.0	0.0
W292afG	19	35	36.77	-63	35	22.24	5.75359526759e-05	7.48160265335e-08	4.22538099983e-08	32.3240172596	1300000000.0	-10.0909831287	0.0	0.0	0.0
bv262jG	19	35	50.96	-63	46	26.85	0.000173808189163	7.48492663408e-08	4.23316991117e-08	32.2723613015	1300000000.0	-6.91993250374	0.0	0.0	0.0
az055cG	19	45	17.16	-63	9	19.46	0.000336538411476	7.48006184544e-08	4.22254166273e-08	30.1630752197	1300000000.0	-6.79671874058	0.0	0.0	0.0
ao113bG	19	43	55.24	-63	51	42.54	0.00136607671961	7.48968660686e-08	4.23464368477e-08	30.4614846033	1300000000.0	-3.08252818004	0.0	0.0	0.0
bd045dG	19	45	9.21000000001	-63	0	5.55000000002	7.31070745657e-05	7.48821322646e-08	4.23353457043e-08	30.1943339649	1300000000.0	-4.24859025563	0.0	0.0	0.0
cz235jG	19	33	33.13	-64	19	4.85000000001	0.000114732116695	7.48298864054e-08	4.23059162502e-08	32.7936530648	1300000000.0	-8.13771448626	0.0	0.0	0.0
ah023eG	19	41	14.97	-63	12	43.49	0.000353865521766	7.48550663826e-08	4.22812622354e-08	31.0632707484	1300000000.0	-6.1067543449	0.0	0.0	0.0
H154bG	19	43	17.51	-64	25	39.39	0.00124158241049	7.48743610073e-08	4.22740524428e-08	30.5983825747	1300000000.0	-7.61154267123	0.0	0.0	0.0
cd314uG	19	34	20.32	-63	8	56.25	4.05894577498e-05	7.47874854776e-08	4.23286623675e-08	32.6049771287	1300000000.0	-12.5012065964	0.0	0.0	0.0
cs135aG	19	45	36.09	-64	17	6.05000000002	5.36208187247e-05	7.48546381599e-08	4.23450982154e-08	30.0792177564	1300000000.0	-7.97455684589	0.0	0.0	0.0

bv262kG	19	35	51.9	-63	46	5.70999999999	5.64999512163e-05	7.47912736136e-08	4.23217983061e-08	32.2687865217	1300000000.0	-9.98288925447	0.0	0.0	0.0
X234aG	19	33	48.92	-64	10	11.09	0.000237101368293	7.48515520821e-08	4.23155016571e-08	32.7327550034	1300000000.0	-8.13270834436	0.0	0.0	0.0
V132pG	19	42	20.65	-63	56	37.05	8.62789245171e-06	7.47876386457e-08	4.22833439312e-08	30.8148559746	1300000000.0	-9.29754141234	0.0	0.0	0.0
am165oG	19	42	9.94	-64	30	47.01	7.40147647109e-05	7.48487003683e-08	4.22326021278e-08	30.8518947972	1300000000.0	-8.37113340009	0.0	0.0	0.0
cd314wG	19	34	16.6	-63	9	19.12	6.27232882928e-08	7.48707232879e-08	4.22598273268e-08	32.6188667734	1300000000.0	-24.0391477363	0.0	0.0	0.0
V132qG	19	42	21.4	-63	56	43.29	1.27304076955e-05	7.48428455304e-08	4.22899743659e-08	30.8120092962	1300000000.0	-9.36522025932	0.0	0.0	0.0
cz235lG	19	33	39.53	-64	18	58.74	5.45888711226e-06	7.48759692519e-08	4.22664490433e-08	32.7696153375	1300000000.0	-11.6058241326	0.0	0.0	0.0
cz235mG	19	33	35.19	-64	18	57.5	3.45549798491e-05	7.48170551446e-08	4.22618701383e-08	32.7859177811	1300000000.0	-12.2224559272	0.0	0.0	0.0
M231bG	19	37	33.03	-63	53	21.42	6.6213871867e-05	7.48299442216e-08	4.23172246156e-08	31.8912579642	1300000000.0	-10.5108982321	0.0	0.0	0.0
cd314xG	19	34	16.69	-63	9	12.71	3.99196650944e-06	7.47907696501e-08	4.22947338879e-08	32.618531069	1300000000.0	-11.3016651807	0.0	0.0	0.0
by043lG	19	42	54.64	-63	18	8.66	5.80297630487e-05	7.48185489711e-08	4.22143080513e-08	30.6919502569	1300000000.0	-4.20488630719	0.0	0.0	0.0
bb103bG	19	44	33.83	-63	48	57.89	3.2543940255e-05	7.48658523632e-08	4.22693367283e-08	30.317621742	1300000000.0	-9.74584825174	0.0	0.0	0.0
ah023fG	19	41	14.46	-63	12	39.59	1.53306133189e-05	7.48721186434e-08	4.2251056618e-08	31.0651862428	1300000000.0	-5.93541050953	0.0	0.0	0.0
X234bG	19	33	50.14	-64	10	6.84	0.000317933202803	7.48069655584e-08	4.22312505741e-08	32.728182625	1300000000.0	-7.47492212254	0.0	0.0	0.0
cz235nG	19	33	33.63	-64	19	10.35	1.29776064369e-05	7.47470440191e-08	4.22976277781e-08	32.7918123977	1300000000.0	-14.0647912798	0.0	0.0	0.0
ea075bG	19	46	52.37	-63	19	18.86	3.14677103002e-05	7.48794088708e-08	4.23060665473e-08	29.8067343126	1300000000.0	-11.830326578	0.0	0.0	0.0
cd314yG	19	34	18.03	-63	8	51.77	1.35316432043e-05	7.48800398298e-08	4.22441485244e-08	32.6134756939	1300000000.0	-14.579264545	0.0	0.0	0.0
aq132aG	19	42	31.59	-63	58	19.58	7.12167469721e-05	7.48278321499e-08	4.22474399884e-08	30.7737121328	1300000000.0	-9.55415150736	0.0	0.0	0.0
ao113cG	19	43	55.88	-63	51	37.21	0.000107884272551	7.48465599242e-08	4.22552748522e-08	30.4591258937	1300000000.0	-9.18861489626	0.0	0.0	0.0
ca054cG	19	44	16.06	-63	17	34.18	2.31862437071e-06	7.48081791846e-08	4.22461986886e-08	30.3889511513	1300000000.0	-14.992545438	0.0	0.0	0.0

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