

RC1:

The dataset presented in the paper “The Greenland GNSS Network (GNET): Geodetic-grade GNSS measurements of Greenland’s 3D bedrock displacement from 1995–2025” is a very important and comprehensive compilation of GNSS records of Greenland’s crustal motion, covering everything from station construction and historical background to raw data, time series, and fundamental geodetic parameters.

I am impressed by the authors’ effort in bringing all of this together. I have only three minor comments.

Comment 1: *“Figure 12 compares similar parameters from different analyses on the two axes. The use of different scales on the axes is confusing and hampers interpretation.”*

- Thank you for pointing that out, it has been fixed, such that the axes are now equal for all 9 subfigures.

Comment 2: *“The uncertainty estimates reported in Table A1 are at the 0.00x mm/yr level, which seems unrealistic. How are these uncertainties calculated?”*

- The uncertainties provided in the preprint has been re-calculated. The original were estimates from the GipsyX-2.4 software .sum files. The uncertainties are given as the uncertainty on the linear trend parameter from a trajectory model fitted the “raw” daily PPP solutions. The trajectory model, includes a linear trend and a seasonal variation. As a result of the large number of datapoints used to fit the model, we also expect the model parameter uncertainty to be very small. As written, we have on the suspicion that the Gipsy estimates are underestimated, recalculated the uncertainties by fitting a new trajectory model and extracting the model parameters + uncertainties. We have updated table A1 with these values. Here you will find that in general all uncertainty values have been increased a bit. In addition we have added the section 4.3.3 “Short vs. Long GNSS Time Series” Where we are assessing the implications of comparing time series of different length + define why we are only using stations with a time series longer than 10 years in the validation analysis.

Comment 3: *“The dataset is a valuable tool for studies of crustal deformation, in particular for investigating the elastic and visco-elastic response to past and present ice-mass changes. Separating these processes is challenging, and velocity estimates in glaciated regions such as Greenland strongly depend on the observation time span. I*

would like to see this discussed in more detail. For instance, the challenges associated with comparing time series with different time spans should be addressed."

- See my answer to **comment 2**. We have added the section 4.3.3 "Short vs. Long GNSS Time Series" where we are addressing the problem of comparing long and shorter GNSS time series from Greenland. We perform an analysis of iteratively fitting a trajectory model to longer and longer subsets of each coordinate component across the network. The results show that some stations will have a converging trend dominated by viscoelastic response from past glaciation and some stations will show no signs of converging, indicating that the stations are dominated by the present ice mass changes. Furthermore, we assess the uncertainty of the trend parameters in order to investigate potential outliers, station-wise. Here we show that the uncertainty for the linear trends for stations younger than 5 years can be classified as outliers compared to the rest of the network.

RC2:

The authors discuss a thorough reanalysis of the Greenland GNSS Network (GNET), providing RINEX files for all station from 1995-2025, corresponding log-files, photos and a 3D deformation time series. In addition, they briefly discuss their result in comparison to results of other processing centers, highlighting the quality of the result provided here. The data are FAIR accessible and ready to use. I assume that the data will be heavily used in Greenland research studies. It is nice to read that the data will be updated accordingly, and moreover, that more stations will be added. The description in the manuscript is sufficiently detailed. Figures, tables etc. support the manuscript nicely. There's not much I can criticize except a few minor and many technical/grammar issues. I am suggesting acceptance subject to minor revision to give the authors ample time for revision.

Comment 1: *"It is mentioned that the stations are planned to avoid heavy snow coverage (l209) but this might not be possible everywhere. Later (l248), it is stated that heavy snowfall resulted in data gaps. Please describe more detailed according to which parameters a "less snow-affected" station is selected and perhaps add a column to Table 1 which briefly states if a station is strongly or only marginally affected by snow. Also, is there any special snow treatment in the GipsyX analysis for the time series? Please explain."*

- In regard to Table 1, see my reply further down regarding faulting GNSS equipment in general. We have added a short description on the optimal

antenna monument, where it is stated that the antenna monument should lift the antenna sufficiently above the surrounding topography in order to avoid snow building up over the antenna. In addition to this, the other requirement of open horizons means that the stations should never be placed in holes or near other topography that could induce snow piling up behind it.

Comment 2: *"Next to polar bears and polar foxes also birds can affect stations. Have there been any strong interactions in the more southern stations? Have there been countermeasures, e.g. dedicated radoms?"*

- Very interesting, we have a few stations in the south part of Greenland, where we see indications that birds sometimes sit on the radome (the indications are bird excrement), however we do not see any implications in the position solution for those sites, which indicate that it is not a significant problem, hence we have also not included it in this paper. Also, no countermeasures have been done.

Comment 3: *"Regarding equipment problems due to animal activity, the authors may consider adding information to Table 1 which stations have been damaged by polar bears etc. (and when, if possible). Further, I suggest to add a figure with one or two pictures of damaged stations that one of the co-authors used to show in his conference presentations. Would be nice to share them via a then citable source."*

- Yes very good point, we have now included a small + for stations we have identified as problematic sites (in the sense of polar bears and other wildlife) and a * for stations we know can get affected by heavy snowfall. This has been implemented in table 1, A1, and B1 + figure 8. We have also included an example of damaged equipment under section 2: "Network Description"

General (RC2): *The use of cite/citep/citet is spoiled in the whole manuscript, please correct!*

- We have gone through the citations again to verify that it should be correct now. Thank you for pointing it out.

PDF (RC2):

- We have gone through the reviews provided in the PDF. Every comment has been implemented, the tracked changes can be found in the resubmission

