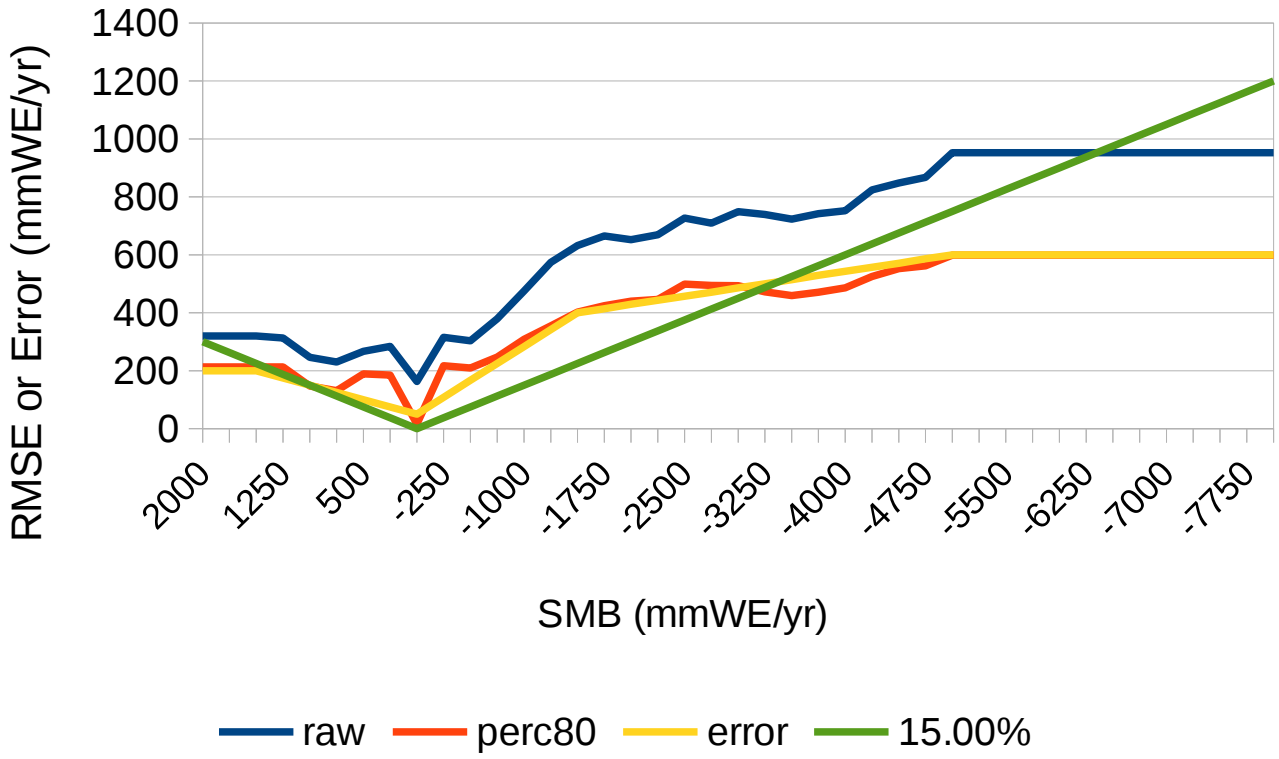
The GrIS monthly data submitted are based on version 3.12.1 of the regional climate model MAR run at a resolution of 10km and 6 hourly forced by ERA5 from 1950 to 2021.

ASCII files (CVS) are provided on both Zwally and Rignot basins. Description of each column is given in the header of the files. It is exactly the same file format than the MAR based estimates submitted for IMBIE et IMBIE2.

NetCDF files are provided on the native 10km MAR grid using the standard Polar Stereographic EPSG:3413 projection. Each variables and units are described in the NetCDF file.

The uncertainties for the integrated values are computed as described below:

1. By comparison with both PROMISE SMB data base and ice cores used for GrSMBMIP (Fettweis et al., 2020), I compute a RMSE for each SMB interval of 250mmWE/yr by using all the observations available (see "raw" on the figure below) and for 80% of the observations the best matching with MAR (see "perc80" on the figure below). Only SMB measurements made over at least 6 months are used here and are converted in mmWE/yr to have all observations and MAR estimates in mmWE/365days. Afterwards, the "percentile 80" curve is approximated with a simple linear function (see "error" on the figure below) of SMB in mmWE/year. This function is the ERROR variable listed in the NetCDF files. Finally, the 15% estimate generally used to evaluate the uncertainly in SMB modelled estimates over GrIS is given as comparison with the error function.



2. For each basin, I generate 100000 randomly errors (based on previous error function) applied to each pixel before integrating the SMB value at the scale of the whole basin. For each iteration, a same error is applied to all the pixels in this "monte-carlo" based estimation of uncertainty.

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```
do l=1,100000 ! monte-carlo
 call random (r) ! r = float between -1 and 1
 do i ; do j
  smb(i,j) = smb(i,j) + r * error(smb(i,j))
  integrated_value(l)=integrated_value(l)+smb(i,j)
```

3. The uncertainties in the CSV files are estimated as the standard deviation of these 100000 integrated values.

```
uncertainty=std(integrated_value)
```

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