IGRF-13 candidate evaluations by GFZ – Erratum

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1 Introduction

This short document contains a correction to the report "IGRF-13 candidate evaluations by GFZ". When contributing to the IGRF Team Evaluation publication we noticed that our calculation of the RMS vector field differences (Section 3 of the report) was erroneous. More precisely, there was a mistake in the SH degree dependence in our equation. Although our previous values are generally in the right order of magnitude, the detailed numbers are wrong. The effect is strongest for IGRF 2020, where the correction changes the order of which candidate model agrees least with the arithmetic mean model. The small corrections to the text in Section 2 of "IGRF-13 candidate evaluations by GFZ" are given in the following. For convenience, we include the overview table of the letters assigned to the individual candidate models again in Section 2 (unchanged), and present the corrected Figs. 3.1 to 3.3 in Section 3.

1.1 DGRF 2015

The mean vector field differences ${}_{i,j}R$ range between 3.79 and 8.89 nT (corrected from "between 4.34 and 9.17 nT")...

1.2 IGRF 2020

The mean vector field differences ${}_{i,j}$R range between 8.86 and 17.82 nT (corrected from "between 8.93 and 16.84 nT")...

Models E, O and B differ most strongly from the mean (corrected from Models O, B, E and N differ most strongly from the mean)...

1.3 SV 2020 - 2025

The mean vector field differences ${}_{i,j}R$ lie between 11.94 and 30.57 nT/yr (corrected from "between 11.49 and 32.95 nT/yr")... Models L, O and I differ most strongly from the mean (corrected from Models L, O, I and C differ most strongly from the mean)...

2 Candidates Overview

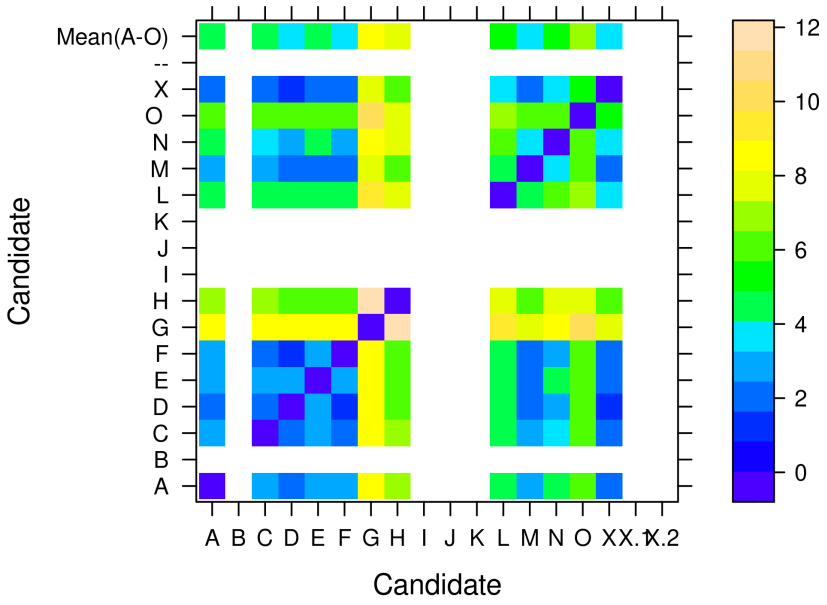
The following table designates a capital letter (used as model ID everywhere), a color and a line type or symbol (used in the original report). The $\oplus$-sign shows if the candidate type is available.

ID	Colour	Line type, Symbol	Designat	15	20	SV
A	black	solid line, star	`BGS`	$\oplus$	$\oplus$	$\oplus$
B	orange		`CEA/CSES`		$\oplus$	
C	green		`CU/NCEI`	$\oplus$	$\oplus$	$\oplus$
D	red		`DTU`	$\oplus$	$\oplus$	$\oplus$
E	blue		`GFZ`	$\oplus$	$\oplus$	$\oplus$
F	brown		`IPGP`	$\oplus$	$\oplus$	$\oplus$
G	purple		`ISTerre`	$\oplus$	$\oplus$	$\oplus$
H	gray		`IZMIRAN`	$\oplus$	$\oplus$	$\oplus$
I	black	dashed line, circle	Japanese Consortium			$\oplus$
J	orange		Leeds			$\oplus$
K	green		MPS (Max Planck)			$\oplus$
L	red		`NASA_GSFC`	$\oplus$	$\oplus$	$\oplus$
M	blue		Uni Potsdam/Max Planck	$\oplus$	$\oplus$	$\oplus$
N	brown		Spanish Team	$\oplus$	$\oplus$	$\oplus$
O	purple		U Strasbourg et al.	$\oplus$	$\oplus$	$\oplus$
X	gray		arithmetic mean model			

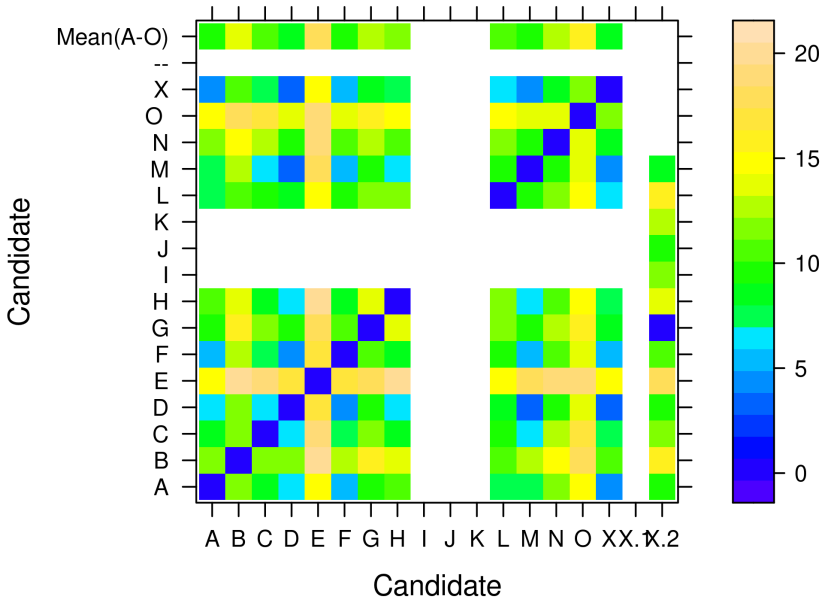
3 Corrected vector field differences

The following plots are visualisations of the corrected RMS vector field differences ${}_{i,j}R$ provided in units of nT (nT/yr for SV) between all pairs of models and to the arithmetic mean model X. The top row shows the mean value of each column. There are blank rows and columns if the corresponding candidate model does not exist. Apart from the extra *Mean (A-O)* row the matrices are of course symmetric. The values plotted here are provided in the separate Excel sheet (generally equivalent to tables 3, 5 and 7 from the 2015 evaluation paper).

3.1 RMS vector field differences DGRF 2015



3.2 RMS vector field differences IGRF 2020



3.3 RMS vector field differences SV 2020-2025