Table 3 Contribution to the higher gravity harmonics ΔJ₈ and ΔJ₁₀ resulting from differential rotation and thermal-wind optimization.

The deviation (Column 1) is the difference between the measured J_8 and J_{10} (Table 1) and the average of the computed values from the 11 CMS models with uniform rotation (Table 2). Two optimizations are shown: one without latitudinal truncation of the zonal flow, resulting in the reconstructed zonal wind profile shown in Fig. 4A and with a flow depth of 9363 km (Column 2), and the second with the flows truncated at latitude 60° (Fig. 4B) and a flow depth of 8832 km (Column 3). Columns 4 and 5 show the deviations calculated with the thermal-gravity equation (48) for similar wind profiles. The solutions from thermal wind are closer to the measurement because the optimization was done using the thermal wind method, but the thermal-gravity solutions also match the observations within 10%.

	Deviation	Thermal-wind solution	Thermal-wind solution truncated at latitude 60°	Thermal-gravity solution	Thermal-gravity solution truncated at latitude 60°
ΔJ_8	-5.600 ± 0.205	-5.624	-5.533	-5.758	-5.759
ΔJ_{10}	3.528 ± 0.659	3.570	3.660	3.974	4.037