



CHAMP and GRACE Resonance analysis

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During the past years resonance analysis of orbital elements of the CHAMP and GRACE experiment yielded excellent specific lumped harmonic parameters of the gravity field models derived from those missions. Using precise orbital data we have repeatedly derived these lumped values for geopotential harmonic coefficients for the $46/3$ (46 revolutions over 3 days), $31/2$, $47/3$ and $61/4$ resonant cycle orbits. The comparison of these coefficients with the recent geopotential models confirms the high quality of our results as well as the respective models under investigation. We refine and extend these previous results with improved de-aliasing of luni-solar and tidal force models as well as updated state-vectors of the satellite missions.