EGSIEM: Combination of GRACE monthly gravity models on normal equation level

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One of the three geodetic services to be realized in the frame of the EGSIEM project is a scientific combination service. Each associated processing center (AC) will follow a set of common processing standards but will apply its own, independent analysis method. Therefore the quality, robustness and reliability of the combined monthly gravity fields is expected to improve significantly compared to the individual solutions.

The Monthly GRACE gravity fields of all ACs are combined on normal equation level. The individual normal equations are weighted depending on pairwise comparisons of the individual gravity field solutions. To derive these weights and for quality control of the individual contributions first a combination of the monthly gravity fields on solution level is performed.

The concept of weighting and of the combination on normal equation level is introduced and the formats used for normal equation exchange and gravity field solutions is described. First results of the combination on normal equation level are presented and compared to the corresponding combinations on solution level.

EGSIEM has an open data policy and all processing centers of GRACE gravity fields are invited to participate in the combination.