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The impact of reprocessed GPS and GRACE data in joint surface loading inversions

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Time variable mass transport on the surface of the Earth can be consistently monitored by merging data from several independent data sets. When assessed globally, the observed mass transport signals can be used to study global migration patterns of water ice and air. Combination strategies allow for the better separation of surface loading phenomena and rigid network transformations, yielding consistent estimates of global mass transport.
Here, we combine weekly station coordinate solutions from the latest Dresden GPS Reprocessing run and the most recent GRACE gravimetry solutions together with output from FESOM (Finite Element Sea Ice-Ocean Model). The results from the joint inversion are compared with previous combination results to assess the impact of the new datasets. Geocenter motion and submonthly land-ocean mass exchanges from the solutions are presented. Furthermore, we investigate how well the inversion results agree with the original input observations, to resolve possible inconsistencies.