Bryant
Loomis
NASA GSFC
Terence J. Sabaka, NASA GSFC
Kenny Rachlin, KBRwyle
Michael J. Croteau, NASA GSFC
Oral

The benefit of combining long spans of GRACE and GRACE-FO data for enhancing the spatial resolution of the mean field and regression model parameters has been demonstrated for years with the series of GOCO spherical harmonic gravity models (and others). For the past few years, our group has been applying the same general approach to the estimation of regularized regression mascons, with a particular focus on enhancing the spatial resolution of the recovered mass trends. Here we present initial estimates of spline mascons designed for the purpose of extracting mass change signals with enhanced spatial resolution relative to monthly products while also providing temporal information not captured by the typical regression model (e.g., trend and annual). We begin by demonstrating the utility of the spline technique for the estimation of unregularized spherical harmonics and then present results for regularized regional mascon estimates. We present comparisons to current GRACE estimates and to select independent data sets.
Meeting homepage
[GRACE-FO 2025 Science Team Meeting](#)
[Download to PDF](#)