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## Rapid extreme meteorological events detected by daily regional GRACE solutions

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We investigate the possibility to use the Low-Earth Orbiter mission well known as GRACE to detect sudden regional variations of water mass storage caused by heavy precipitation and flooding episodes caused by the passage of tropical hurricanes of categories 4-5 (from day to a week). For this purpose, daily water mass solutions are produced from along-track GRACE geopotential anomalies to catch the signatures of these intense meteorological events. These geopotential variations are derived from accurate inter-satellite K-Band Range Rate (KBRR) measurements made along the 5-second orbits by imposing the total energy conservation to the twin GRACE vehicles. The determination of these surface sources is made over a regional network of juxtaposed triangular tiles of quasi-constant areas, and they are refreshed by a Kalman filtering for integrating progressively daily geopotential observations. These latter data have been previously reduced from known gravitational effects of atmosphere and oceanic masses (including periodic tides) for isolating the continental hydrology contribution. Our estimates of regional hydrological impacts are also compared to the ones obtained by synthesis of daily degree-40 Stokes coefficients provided by ITSG, Graz.