



Supplement of

Brief communication: Rise of the Guadalupe River – a multifaceted post event analysis of 4 July 2025, flood in Central Texas

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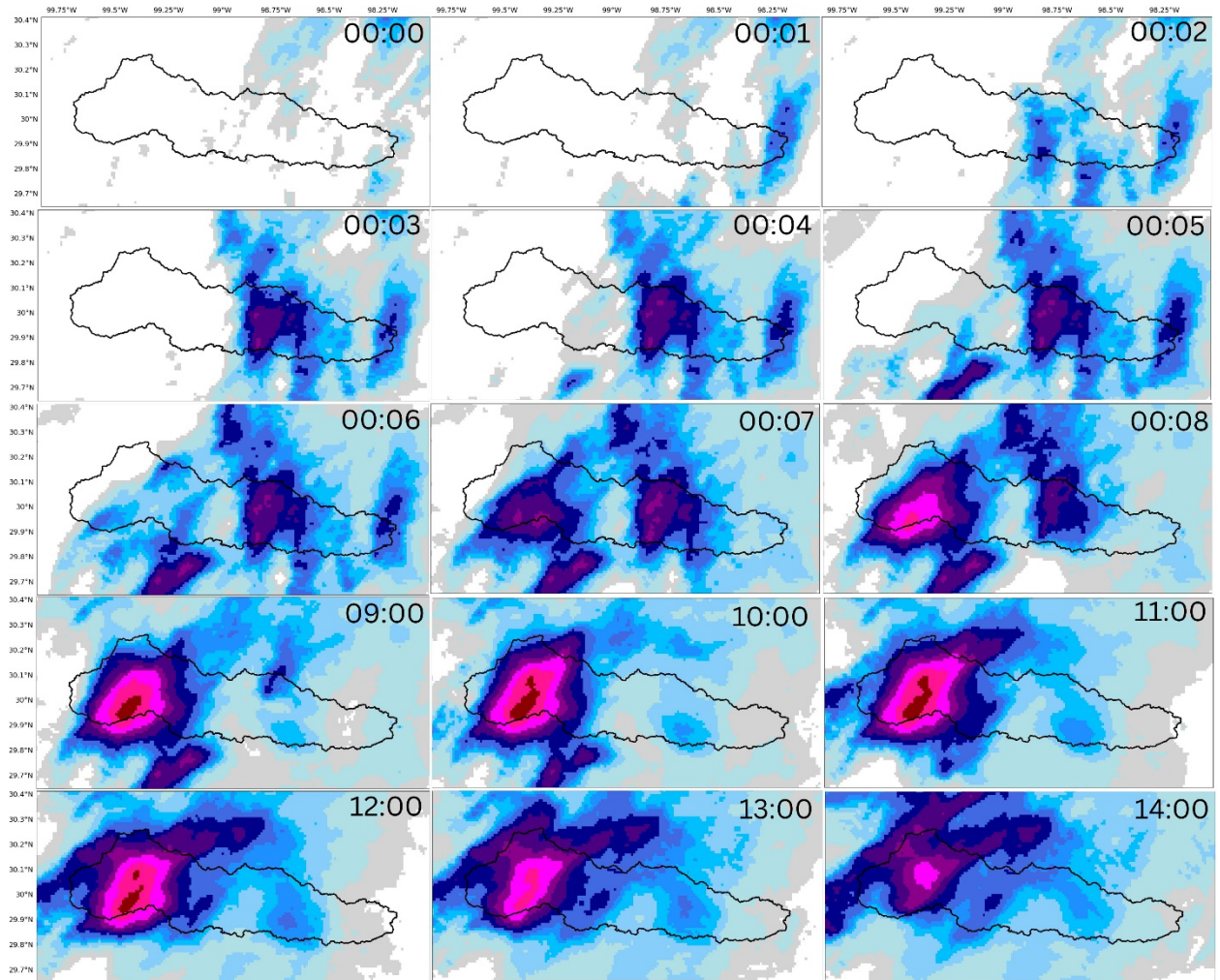


Figure S2: Showing the temporal evolution of six-hour precipitation accumulation from MRMS Pass 2 leading to the flash flooding event, with each subplot representing the six-hour accumulated precipitation up to the indicated hour from July 4th 00:00 to July 4th 14:00.

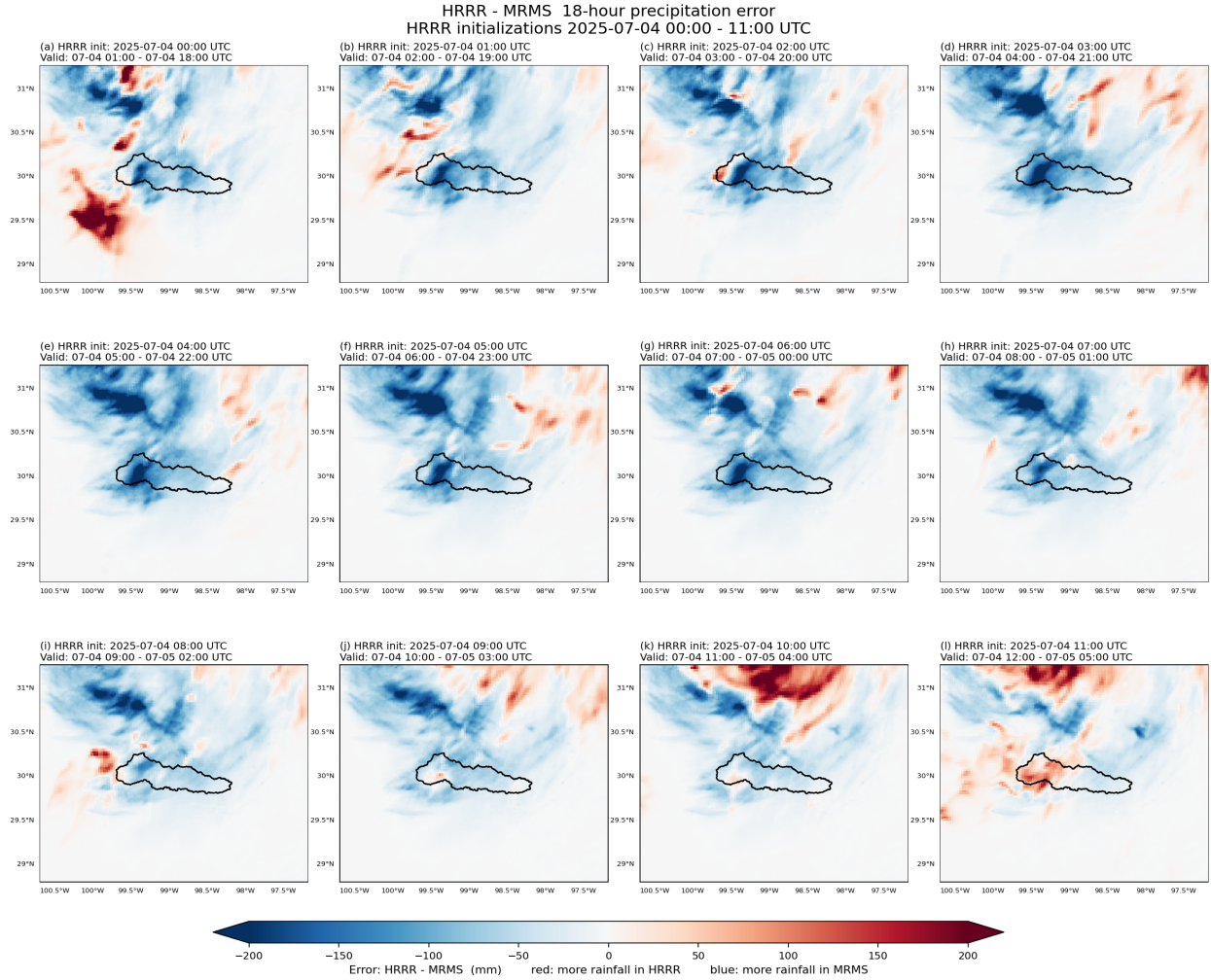


Figure S3: Figure S3: Spatial error (HRRR – MRMS) in 18-hour accumulated precipitation over the Guadalupe (HUC8) basin and a 1° buffer, for twelve successive HRRR initializations from 2025-07-04 00:00 UTC through 11:00 UTC. Each panel (a–l) shows the difference field for one initialization: the 18-hour HRRR forecast accumulation (regridged to the MRMS grid) minus the matching 18-hour MRMS Pass-2 hourly QPE sum over the same valid window. All values are in mm. A common symmetric scale (± 200 mm) is used across panels; red denotes more rainfall in HRRR, blue more rainfall in MRMS. The black outline marks the HUC8 boundary.

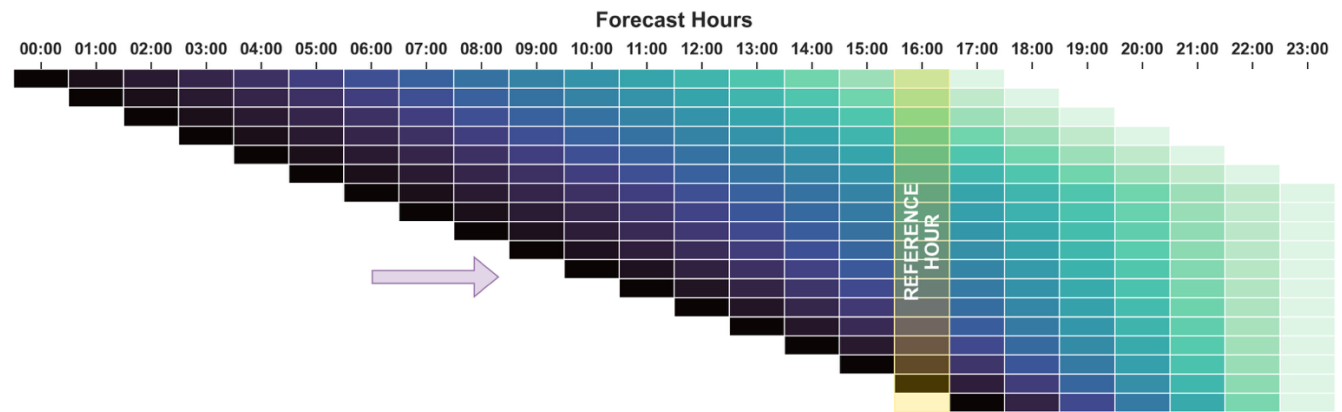


Figure S4: Conceptual illustration of vertical stacking of flood inundation maps at a reference hour using subsequent forecasts to obtain the maximum inundation extent. For reference, hour 16, forecasts initialized from hour 00 to hour 15 are aggregated.