

Weekly Report – July 02, 2026
Cooperative Institute for Satellite Earth System Studies (CISESS)
NOAA/NESDIS/STAR

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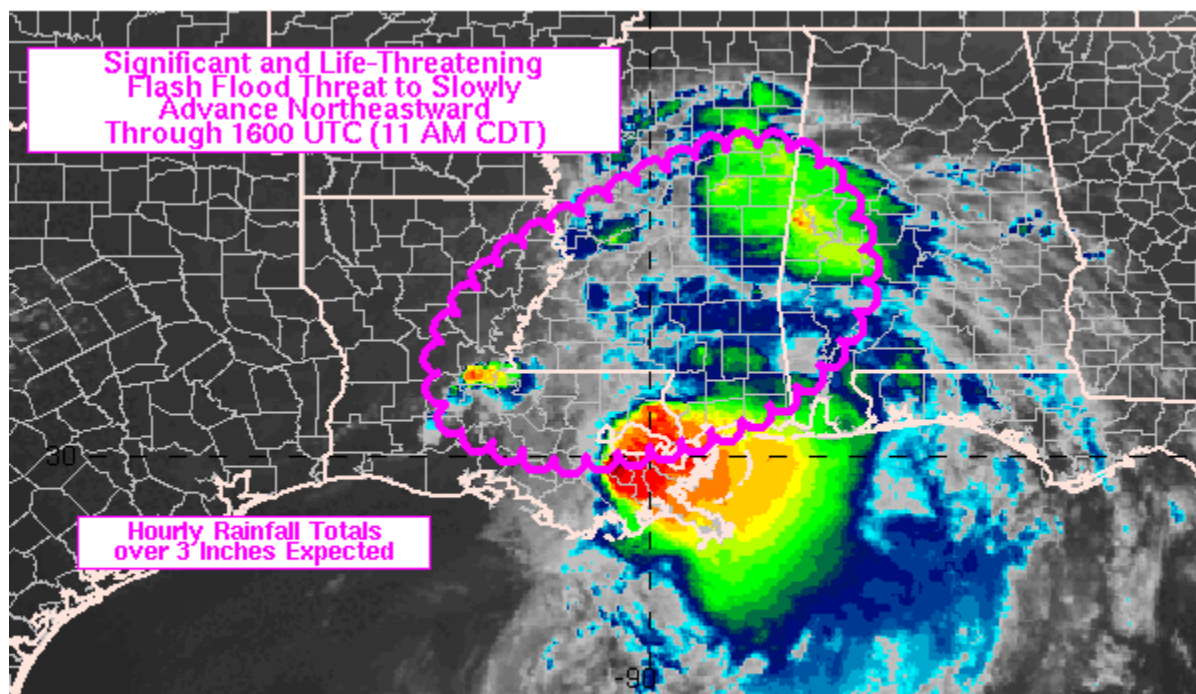
Date of Submission: 02 July 2026

SOCIAL MEDIA AND BLOG POSTS

A Rain-Soaked Deep South

[Arthur was the first named tropical storm](#) of the Atlantic hurricane season, developing on June 17 along the central Texas coastline and quickly decaying into a low-pressure system within a day. However, the threat of dangerous flooding remained, reports CISESS Scientist Christopher Smith, the GOES-R Satellite Liaison to the National Weather Service’s Weather Prediction Center and Ocean Prediction Center. Heavy rainfall was in the cards for the Deep South, according to “potentially life-threatening flash and urban flooding” warnings issued by the National Weather Service over the next day or two. The Louisiana state record for the most rainfall in 24 hours was broken, with a historic 29 inches of rain falling in less than 12 hours near Cottonport, Louisiana.

(Also published on the [Satellite Liaison Blog](#), along with other blog posts of interest by other contributors.)



260618/1010 GOES19 CH13 IR_10.3
WPC MPD #0447

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Figure: National Weather Service’s Weather Prediction Center Mesoscale Precipitation Discussion issued at 1021 UTC 18 June 2026, overlaid on GOES-East IR imagery.

(Text provided by Cribb)

(Christopher Smith, CISESS, csmith70@umd.edu, Funding: GOES-R PGRR)

PUBLICATIONS

Evaluating GNSS Radio Occultation Algorithms

Citation: Chen, Yong, Xinjia Zhou, **Xin Jing**, Shu-Peng Ho, **Xi Shao**, and **Tung-Chang Liu**, 2026: Processing multiple GNSS RO data using FSI and ROPP: results from the ROMEX. *Atmos. Meas. Tech.*, **19**, 3781–3800, <https://doi.org/10.5194/amt-19-3781-2026>.

Summary: Global Navigation Satellite System (GNSS) Radio Occultation (RO) is a space-based technique critical for modern weather forecasting and atmospheric research because it provides accurate, all-weather, global measurements of refractivity, temperature, pressure, and humidity in the atmosphere. In the fall of 2022, the Radio Occultation Modelling Experiment (ROMEX) was conducted to show the impact of increased numbers of GNSS-RO observations on numerical weather prediction (NWP), bringing together data providers from different satellite missions, including commercial companies, from around the world. The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) and the University Corporation for Atmospheric Research (UCAR) were responsible for processing RO data to bending angles, which were then provided to NWP centers involved with ROMEX, each with their own processing system. In this paper published in the journal *Atmospheric Measurement Techniques*, CISESS Scientists Xin Jing, Xi Shao, and Tung-Chang Liu present the first in-depth intercomparison of the NOAA Center for Satellite Applications and Research’s Full Spectrum Inversion (STAR FSI) RO dataset with those from UCAR and EUMETSAT, using the European Centre for Medium-Range Weather Forecasts Reanalysis v5 (ERA5) reanalysis as the reference. A major finding is the exceptional agreement among all three processing methods in the middle and upper troposphere and lower stratosphere (8–35 km). However, in the lower troposphere and upper stratosphere, biases are revealed, reflecting the advantages and disadvantages of the different retrieval approaches. These biases filter down to refractivity retrievals, reinforcing the idea of having the best bending-angle retrievals possible. The overall consensus is that as GNSS RO data continue to grow in volume, collected from diverse sources, robust algorithms, better uncertainty estimates, and coordinated processing will be essential to maximize the value of RO observations for weather forecasting and climate monitoring, among other applications.

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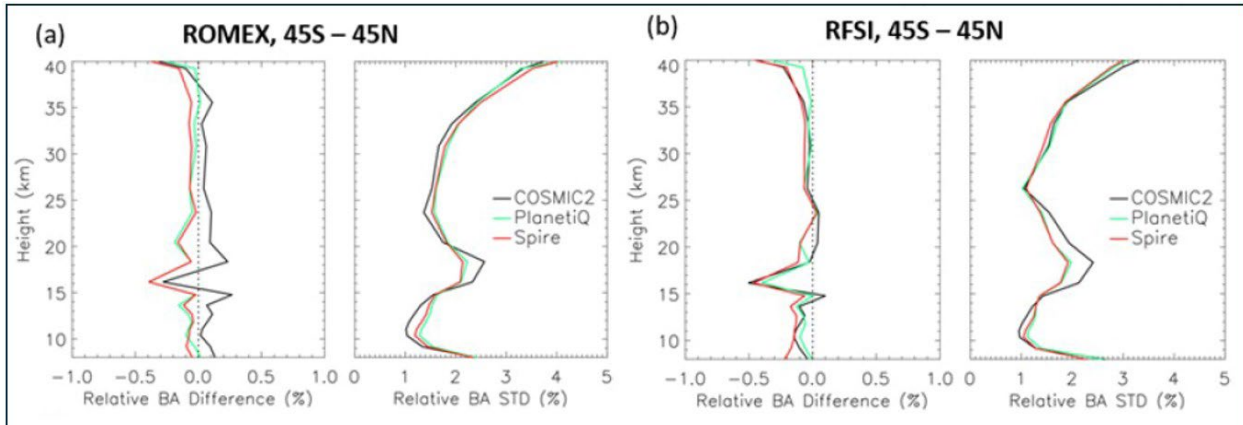


Figure: Height-dependent fractional bending-angle differences between RO observations and ERA5 simulations for COSMIC-2 (processed by UCAR) and Spire and PlanetiQ (processed by EUMETSAT). Panels (a) and (b) display the mean bending-angle biases (left) and standard deviations (right) for RO data processed by EUMETSAT/UCAR and by STAR RFSI, respectively. Panel (b) shows that processing with STAR RFSI brings COSMIC-2 bending angles more in line with Spire and PlanetiQ results in the lower stratosphere.

(Text provided by Cribb)

(Xin Jing, CISESS, xinjing@umd.edu, Funding: COSMIC2, JSTAR & STAR; Xi Shao, CISESS, xshao@umd.edu, Funding: COSMIC2, JSTAR & STAR; Tung-Chang Liu, CISESS, tcliu@umd.edu, Funding: COSMIC2 & JSTAR)

(Maureen Cribb, CISESS, mcribb@umd.edu, Funding: CISESS Task I)