Flood inundation caused by Hurricane Harvey (USA)

EVENT:

Harvey made landfall as a Category 4 hurricane on August 25, 2017 at 11:00 p.m. EDT at San Jose Island, Texas. Harvey caused prolonged heavy rains, flooding and storm surge along the Texas coast.

DISCLAIMERS:

The Luxembourg Institute of Science and Technology (LIST), in collaboration with the ESA Research and Service Support Team (ESA RSS), is sharing its Sentinel-1 based Synthetic Aperture Radar processing results for this flood event.

The flood maps were obtained by applying an automatic unsupervised Change Detection algorithm to pairs of Sentinel-1 SAR images. Permanent water bodies are removed from the flood map.

Sentinel-1 SAR GRD images were downloaded from the ESA scihub (https://scihub.copernicus.eu/) and processed using the ESA SNAP Toolbox (radiometric-calibration and geocoding).

The processed products have a spatial resolution of 20m for the IW images and 10m for the Stripmap images.

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| Downloadable files: 1) .shp and geotiff files, GIS flood extent 2) pdf file, SAR flood map and basemap overlays created in Arcgis |

REFERENCES:

The retrieval algorithm is explained in the following papers:

Chini, M., Hostache, R., Giustarini, L., & Matgen, P. 2017. A Hierarchical Split-Based Approach (HSBA) for parametric thresholding of SAR images: flood inundation as a test case, Transactions on Geoscience and Remote Sensing, in press.

Giustarini, L., Hostache, R., Kavetski, D., Chini, M., Corato, G., Schlaffer, S. & Matgen, P., 2016. Probabilistic flood mapping using synthetic aperture radar data, Transactions on Geoscience and Remote Sensing, 54(12), 6958 – 6969.

Giustarini, L., Vernieuwe, H., Verwaeren, J., Chini, M., Hostache, R., Matgen, P., Verhoest, N.E.C. & De Baets, B., 2015. Accounting for image uncertainty in SAR-based flood mapping, International Journal of Applied Earth Observation and Geoinformation, 34, 70–77.

Matgen, P., Hostache, R., Schumann, G., Pfister, L., Hoffmann, L., & Savenije, H. H. G., 2011. Towards an automated SAR-based flood monitoring system: Lessons learned from two case studies, Physics and Chemistry of the Earth, 36, 241–252.

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