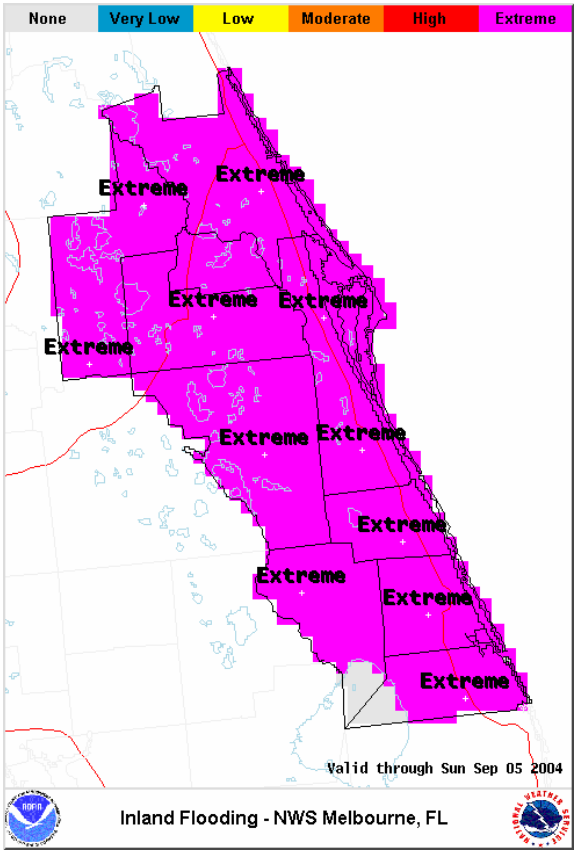
Experimental

Tropical Cyclone Flood Impact Product



Description: Issued by the local Weather Forecast Office (WFO) during tropical cyclone situations, the ***Tropical Cyclone Flood Impact*** product depicts the potential impact of the associated inland flooding hazard from heavy rain. It responsibly converts the most relevant threat assessment information into descriptions of potential impact using a color-coded index scale ranging from 0 to 5, *None* to *Extreme*. It combines the forecasting expertise of the Hydrometeorological Prediction Center and the local WFO by considering both the regional-scale environmental conditions and local-scale enhancements conducive for flash flooding or rapid inundation. It is based on the likelihood that inland flooding will occur combined with the anticipated magnitude of the worst flooding, offering a more complete expression of the overall threat and corresponding impact. Product release is triggered by the issuance of a tropical cyclone Watch or Warning anywhere within the defined area, but flooding impacts can be much broader in both time and space. Routine updates are provided shortly after each official advisory and are continued until tropical cyclone flooding rain is no longer an immediate threat to local communities.

Utility: The ***Tropical Cyclone Flood Impact*** product uses an index scheme to distill an abundance of inland flooding information into a single plan-view map that is easy-to-understand. The product is designed to motivate less-sophisticated users to action regarding preparedness activities, while helping to prevent information paralysis. Importantly, it highlights the minimum actions to be taken and relates them to generalized impacts. In tropical cyclone situations, inland flooding from heavy rain can occur well before landfall (making preparedness and evacuation efforts more difficult), well after landfall (making rescue and recovery efforts more hazardous), and in locations well away from the tropical cyclone center (making it more challenging to elevate public concern). Although current and forecast stage data are important, users should note that longer-term flooding of major rivers is not explicitly addressed within this product.

For Example: Upon the issuance of a tropical cyclone Watch or Warning, residents living near an already swollen lake or stream might investigate the ***Tropical Cyclone Flood Impact*** product to assess the potential for impending (flash) flood watches and warnings. Being subject to a potential impact of an extreme level, the personal decision may be made to quickly finish sand bagging, gather essential belongings, and temporarily evacuate before possible flood waters can cut off escape routes. Also, officials would have a better indication of the extent to which flood waters might prompt dangerous water rescues and where the worst flooding is most likely to impact recovery efforts.

Note: The example image depicts the potential impact from inland flooding due to heavy rain associated with Hurricane Frances (2004) as expressed within 24 hours of landfall in east central Florida. Graduated definitions are based on the likelihood that inland flooding will occur, while accounting for the anticipated magnitude of the worst flooding. Due to the rather large size and slow forward speed of Frances, the entire area was subject to an extreme potential impact.

Tropical Cyclone Flood Impact Definitions

Impact Levels	Description
Extreme	• **Threat:** An extreme threat to life and property; the likelihood for higher rain totals to greatly exceed flash flood guidance. • **Minimum Action:** Prepare for the likelihood of damage consistent with very major inland flooding. • **Potential Impact:** An extreme impact to communities within the specified area. Scattered locations may experience major inland flooding, among many locations of minor to moderate inland flooding.
High	• **Threat:** A critical threat to life and property; the likelihood for higher rain totals to well exceed flash flood guidance. • **Minimum Action:** Prepare for the likelihood of damage consistent with major inland flooding. • **Potential Impact:** A high impact to communities within the specified area. Isolated locations may experience major inland flooding, among scattered locations of minor to moderate inland flooding.
Moderate	• **Threat:** A significant threat to life and property; the likelihood for higher rain totals to exceed flash flood guidance. • **Minimum Action:** Prepare for the likelihood of damage consistent with moderate inland flooding. • **Potential Impact:** A moderate impact to communities within the specified area. Isolated locations may experience moderate inland flooding, among scattered locations of minor flooding.
Low	• **Threat:** An elevated threat to life and property; the likelihood for higher rain totals to be around flash flood guidance. • **Minimum Action:** Prepare for the likelihood of damage consistent with minor inland flooding. • **Potential Impact:** A low impact to communities within the specified area. Isolated to scattered locations may experience minor inland flooding.
Very Low	• **Threat:** A limited threat to life and property; the likelihood for higher rain totals to approach flash flood guidance. • **Minimum Action:** Prepare for the likelihood of damage consistent with very minor inland flooding. • **Potential Impact:** A very low impact to communities within the specified area. Isolated locations may experience minor inland flooding.
None	• **Threat:** No discernible threat to life and property; the likelihood for higher rain totals to remain below flash flood guidance. • **Minimum Action:** Listen for forecast changes; review flooding safety rules. • **Potential Impact:** None expected; heavy rain may still occur.

Minor Flooding – Within 6 hours after heavy rain, small streams, creeks, canals, and drainage ditches become swollen and overflow in a few places. In flatter terrain, quick ponding of water occurs around low-lying spots, especially in historically vulnerable locations. In urban places, quick ponding of water occurs at certain underpasses or poor drainage spots, especially in historically vulnerable locations. Storm drains and retention ponds become near-full and begin to overflow in a few places. In mountain areas, runoff moves down the valley and is becoming a concern, especially in river valleys. Flood waters generally affect a few buildings and roads.

Moderate Flooding – Within 6 hours after heavy rain, rivers and tributaries become swollen and may begin to overspill their banks in a few places, especially in historically vulnerable locations. Small streams, creeks, canals, and drainage ditches overflow. Normally dry gullies or dry creek beds become alive. In flatter terrain, expanded areas of rapid inundation occur around low-lying spots covering several secondary roads. In urban places, expanded areas of rapid inundation occur at several underpasses or poor drainage spots, with some streets and parking lots taking on moving water. Storm drains and retention ponds overflow. In mountain areas, considerable runoff moves fast down the valley washing out some roads, especially in river valleys. Hillsides vulnerable to erosion become a concern for mudslides. Flood waters generally affect several buildings and roads.

Major Flooding – Within 6 hours after heavy rain, rivers and tributaries overflow their banks in several places. Small streams, creeks, canals, and drainage ditches become dangerous rivers. Normally dry gullies or dry creek beds become alive with dangerous and fast moving water. In flatter terrain, extensive inundation occurs covering both primary and secondary roads. In urban places, widespread inundation with streets and parking lots becoming rivers of moving water. In mountain areas, destructive runoff moves fast down the valley washing out everything in its path, especially in river valleys. Hillsides vulnerable to erosion give way to mudslides. Flood waters generally affect many buildings and roads.