Section 9:
Decision Support Products

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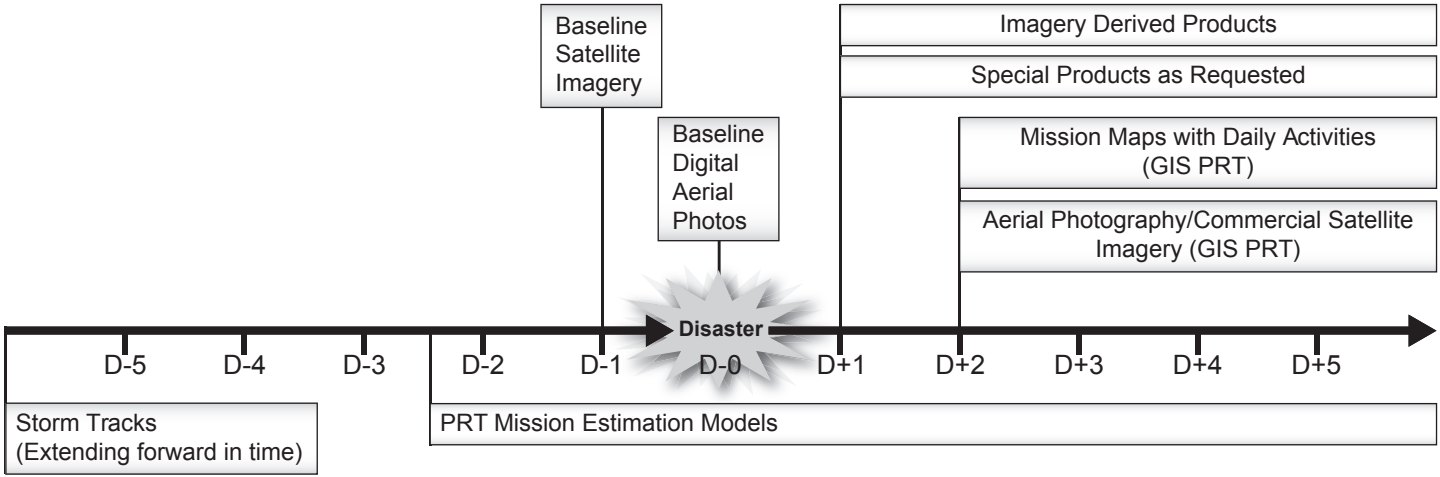
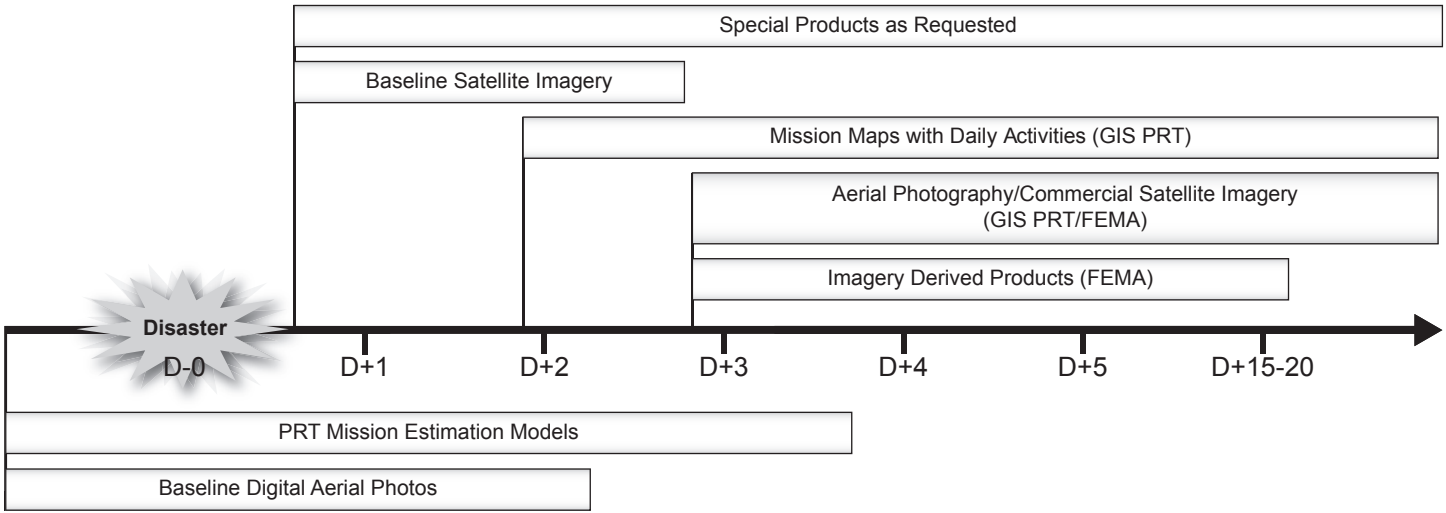
Timeline for Disasters with Warning	9-1
Timeline for Disasters without Warning	9-2
Overview	9-3
Mission Modeling Assistance	9-4

Timeline for Disasters with Warning



Timeline is dependent on the nature of the event and available funding. The local District may be able to provide initial GIS support.

Timeline for Disasters without Warning



Timeline is dependent on the nature of the event and available funding. The local District may be able to provide initial GIS support.

Overview

Models can be used to provide damage estimates for pre-disaster planning. The models are best used for mission planning prior to and immediately following events in the absence of any “on-the-ground” information. The models also identify critical facilities pre-event in support of the emergency power mission as possible candidates before formal requests are received through State EOC channels.

Satellite and/or airborne imagery can cover the entire affected area and enable a more accurate assessment of the damage than models provide. The acquisition of imagery can require unclouded sky conditions (visible through infrared portions of the spectrum), and the imagery may require some form of analysis. If the imagery is to be combined with other geospatial data in a Geographic Information System (GIS), the imagery will also have to be rectified. Imagery can be interpreted to show the intensity of the damage. If at a sufficiently large scale, it may be interpreted for specific damage types, such as downed power lines, loss of roofs, loss of rafters, and damage to specific buildings (e.g., power plants). However, there is likely to be a gap from hours to days between the occurrence of an event and the availability of rectified and/or interpreted imagery.

GIS During Response: GIS data can be combined with damage models and imagery in many ways. It is possible to determine within areas of predicted or interpreted heavy, moderate, and light damage how many structures of particular types occur (e.g., mobile homes, hospitals, power plants). In a similar way, information in the geospatial databases can be used to provide information to emergency responders about the locations of facilities that need to be examined to determine power requirements (e.g., hospitals) or that need to be evaluated from an engineering standpoint before they are reoccupied (e.g., schools). Geospatial data may include the locations of levees and levee heights, closing structures, and other information to protect areas as floodwaters rise. Features with geographic locations can be mapped and the maps can be provided in printed or electronic form (e.g., distribution points for ice and water, shelter locations).

GIS During Recovery: Mapping provides a critical tool during recovery for tracking the status of missions. Maps can be designed to report accomplishments to date, accomplishments over the last 24 hours, and the total to be accomplished. Data can be placed on the map for the reporting zones and can also be presented in graphs that show daily and target performance. Map production requires tabulation of daily performance for each reporting unit and providing of the data to the mapping staff.

Mission Modeling Assistance

USACE Hurricane Mission Modeling Assistance:

- Through the use of geospatial tools, USACE provides estimates of possible debris volumes, needs for water and ice, commodities, numbers of people and households likely within hurricane force winds, and possible temporary roofing and temporary housing needs starting about three days prior to a forecasted hurricane landfall. Model estimates are developed and posted on the ENGLink public website.
- Timing of the release of model results is dependent on the speed of a storm, the National Hurricane Center (NHC) and the Central Pacific Hurricane Center (CPHC) forecast times, as well as the estimated time of landfall. The models are applicable for the US East Coast and Gulf Coast, Caribbean Islands, and Pacific Islands.
- Mission Models will be available during all storms. The first model will be available approximately three days before landfall. The last model will be available one to two days after landfall.
- About three days before landfall, a three-scenario model will be developed for each mission area. The three scenarios will be a worst damage track, a most probable track, and a least damage track. All scenarios will be within the cone of possible impact forecasted by the NHC and CPHC. Similar information will be developed about 12 hours before landfall. Models will be created at 1200 Zulu and 2000 Zulu hours about one day before landfall for the most probable landfall scenario. Models will be created after landfall as soon as information is available, with postings as close to six-hour intervals as possible. The final posting of models will be about one day after landfall at least, at 1200 Zulu, with additional postings as new information warrants.

Public ENGLink URL – http://www.englink.usace.army.mil