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Integrating EO-based products with flood disaster cycle timelines

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For effective flood disaster assistance, many response organizations, such as FEMA or the United Nations for instance who have a mandate to take action, follow well-established operations timelines that are representing the different phases of a disaster cycle, from pre-event preparedness to post-event recovery. Traditionally, EO products have had relatively little place in disaster assistance operations, particularly during the actual event response phase. However, with the proliferation of remotely sensed data over the last decade, EO products have now matured and hence there is a general consensus among space agencies, numerous organizations, scientists, and end-users to strengthen the support that satellite missions can offer, particularly in assisting flood disaster response activities. Satellite missions providing soil moisture data in combination with satellite precipitation fields, can inform about a basin's antecedent conditions many days prior to the event. Also, historical satellite-derived inundation limits in area of concern, storm surge data, and GIS base layers delivered by remote sensing are of great value prior to the event. During the event, products from satellites and other remote sensing platforms can inform about the current state of flooded areas, the number and location of affected and displaced population, ongoing precipitation and damage to infrastructure. Such products are also vital during the post-disaster recovery phase. Although the value that remote sensing can offer to flood disaster response activities is growing rapidly, many challenges still lie ahead. Ensuring sustainable and interoperable use as well as optimized distribution of remote sensing products and services through consistent and organized coordination mechanisms need to be the top priorities. Another clear need is end -user driven validation and feedback in order to eventually make satellite-based products and services more credible to the decision-maker. It is also important to manage expectations and, if satellite-based applications are to achieve the required readiness level for decision-making, scientists and engineers need to be honest and clear about what exactly science and technology can offer and what the capabilities of the many products and services being offered mean to end-users.