



Why was Typhoon Haiyan in the Philippines so bad and how does it compare to its 1897 predecessor?

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Super typhoon (ST) Haiyan struck the Philippines on the 8th of November 2013, with winds exceeding 280 km/hr that generated a 'tsunami-like' surge typically 5 to 7 m high that struck Tacloban City and the surrounding coast of the shallow and funnel-shaped San Pedro Bay. ST Haiyan killed more than 6,000 and destroyed over a million dwellings in the central Philippines. It is the deadliest typhoon in the Philippines superseding the November 1991 Tropical Storm Thelma disaster in Ormoc City, on the western coast of Leyte Island. Damage and losses from ST Haiyan were particularly high along the coasts surrounding the shallow and funnel-shaped San Pedro Bay, including the coastal city of Tacloban. The first storm surge reconnaissance was conducted from 23 to 28 November 2013 in areas surrounding San Pedro Bay. Follow up surveys were conducted in January, May and June to cover larger and more remote coastlines in Samar Island facing the Leyte Gulf and the Philippine Sea. Digitized local bathymetric charts and Delft3D Flow were used to generate a coupled surge-tide-wave model to simulate the surge heights within San Pedro Bay. In this contribution we use field measurements, eyewitness accounts and video recordings to corroborate computer simulations and characterize the extremely high velocity flooding caused by a storm surge during ST Haiyan. Deadly as ST Haiyan was it was not without precedent. We then compare the surge heights from ST Haiyan with those of a similar unnamed typhoon in October 1897 (Ty 1897). Our comparison shows that the common belief that ST Haiyan was unprecedented is contradicted by historical record. The historical 1897 typhoon took a very similar path of destruction as ST Haiyan and although Ty 1897 appears less intense, it generated a storm surge of comparable magnitude that exceeded 4 m in most places with a maximum of 7 m. With the ancestral knowledge of 1897 disaster now widely absent in the present consciousness of residents in the region, government warnings with accurate forecasts were unheeded. ST Haiyan highlights the importance of historical knowledge and its role in multi-hazard education and awareness towards appropriate planning, spontaneous response, and evacuation.