



Organic geochemical evidences of the 2011 Tohoku-oki tsunami (Northern Japan)

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Inundation by the 2011 Tohoku-oki tsunami flooded wide areas of coastal land in the Aomori Prefecture (Northern Japan). Once the 6-10 m high waves overflowed the 4.5 m high coastal defense walls at Oirase sensitive infrastructure was damaged, releasing pollutants into the nearfield environment. At the Momoishi-industrial park in Oirase the tsunami damaged multiple companies during the event and the ponding effect afterwards. Possibly two waves can be documented in the sedimentary record. With maximum thicknesses of 10 cm, fining upward sequences, rip-up clasts, mud caps and other sedimentary features these deposits present well preserved examples of tsunami deposits. This archive is best suited for a complementary organic geochemical analysis of the anthropogenic pollutants that were released by the neighboring factories. Cores were taken in an increasing distance from the factory starting from 10 m to 200 m. Close to the factory a strong increase of organic pollutants, such as polycyclic aromatic hydrocarbons, can be detected within the tsunami deposit. Reforestation efforts to replace destroyed sections of the coastal control forest, however, lead to the loss of parts of this 2011 tsunami archive. This increases the importance to sample and analyze these disappearing deposits, to gain a better understanding of the 2011 Tohoku-oki tsunami. This information will lead to a better hazard mitigation, reducing the destruction and the consideration of steps that need to be taken to diminish the associated pollution by the tsunami.