The Tsunami Data Access and Modelling Tool (TsuDAT) is a new tool for tsunami inundation and impact modelling. Its aim is to allow the state and territory governments in Australia to conduct tsunami inundation and impact modelling and improve their capacity to manage their tsunami risk. TsuDAT is based on the GeoNode open source platform that facilitates the creation and collaborative sharing of geospatial data through a combination of the OpenLayers, GeoExt, and GeoServer platforms. This framework provides a graphical user interface (GUI) for visualisation of data and an interactive model builder for the open source hydrodynamic modelling software ANUGA. The tool is underpinned by a precomputed database of over 70,000 tsunami events that were generated for a national offshore probabilistic tsunami hazard assessment for Australia. Within the GUI users can interactively explore the offshore probabilistic tsunami hazard, disaggregate the hazard to identify likely source zones, and select events for scenario modelling. Users can upload elevation data with suitable resolution and quality, manipulate and assess the quality of the data, and then run a tsunami inundation model. A related impact assessment application can then access the results and combine these with suitable exposure and vulnerability information to perform impact analysis. TsuDAT can be easily extended to other geographic regions where offshore probabilistic tsunami hazard assessments have been undertaken, and provides a consistent method for communicating, analysing, and comparing tsunami impact and ultimately risk.