Atua Māori GIS Data Layer Structure Resource

A reference tool for organising GIS data using atua Māori as the kaupapa Māori framework.
Provides examples of how to structure spatial layers (e.g. Tangaroa – sea level rise, Tāne – forest loss) and integrate cultural sites, tohu, and environmental risk.

Purpose:

This reference tool supports tangata whenua, GIS specialists, planners, and environmental professionals to organise GIS data using Atua Māori as a kaupapa Māori framework. It encourages integration of mātauranga Māori with spatial technology to visualise environmental risk, cultural heritage, and natural systems in alignment with Atua Māori environmental domains. It can guide the development of tangata whenua climate adaptation layers and environmental management.

1. Atua-based GIS Layering Approach

For each atua listed below, practitioners can:

- Identify and group relevant environmental data layers from sources like FNDC Open Data Portal: https://opendata-fndc.hub.arcgis.com/
- Add mātauranga-aligned cultural features (e.g. tohu, wāhi tapu, pūrākau)
- Highlight environmental threats and resilience strategies unique to that atua's domain
- Use as a template for mapping projects, digital storytelling, or spatial planning

Atua (Domain)	Description	Example GIS Layers
Ranginui (sky)	Rainfall, storms, extreme weather patterns	Rainfall, air quality, storm event frequency
Papatūānuku (land)	Soil, whenua shifts, erosion, drought	Soil erosion, slips, slope instability, land use
Tamanuiterā (sun)	Heat, UV, sun intensity	Temperature heatmaps, UV exposure, drought zones
Tāwhirimātea (winds)	Cyclones, wind speed, turbulence	Wind exposure zones, cyclone paths
Whatitiri / Uira (thunder/lightning)	Electrical storms, power hazards	Lightning strike zones, power outage areas
Tāne Mahuta (forests)	Biodiversity, forest cover, fire	Forest vegetation, pest zones, canopy loss
Mahuika (fire)	Fire, drought, fossil fuel impacts	Wildfire risk zones, energy infrastructure
Moana Tu i te Repo (wetlands)	Wetland drying/flooding	Swamp and march locations
Moana Tu i te Wao (freshwater lakes)	Lake mauri, algal blooms	Lake water quality, temperature, lake edge
Tangaroa (ocean)	Sea level rise, acidification, marine life	Coastal erosion, kaimoana zones, sea temperature
Ruaūmoko (earthquakes)	Seismic/geothermal	Fault lines, geothermal zones, landslide risk
Rongomaraeroa (cultivated food)	Crop failure, maara impacts	Food production zones, growing regions
Whiro (disease, imbalance)	Health, contamination, decay	Illness data (Covid-19)
Tūmatauenga (resilience/warfare)	Social stress, emergency	Defence zones, evacuation routes, emergency shelter

2. How to Use This Tool

1. **Choose an Atua Lens**: Decide which atua is relevant for your project context (e.g. Tangaroa for marine threats).
2. **Identify Spatial Data**: Use the FNDC GIS portal or your local GIS team to gather relevant environmental layers. See FNDC e-Plan here: https://www.fndc.govt.nz/Council/District-Plan/Proposed-District-Plan/how-to-use-the-eplan and Northland Regional Council local map gallery: https://localmaps.nrc.govt.nz/LocalMapsGallery/
3. **Overlay Mātauranga**: Add cultural indicators like sites of cultural significance, wāhi tapu, maramataka markers, or taonga species.
4. **Map Risks & Responses**: For each layer, show both risk areas and culturally appropriate responses.
5. **Name & Structure Layers**: Ensure names reflect atua domains (e.g. "Tāne Mahuta – Wildfire Vulnerability").
6. **Share with Consent**: Only publish or share layers with tangata whenua authorisation.