

NIWA Data Services



Jochen Schmidt, Chief Scientist Environmental Information



The NIWA Data, Model & Product Infrastructure





Summary – Components of the Infrastructure

System components

- NIWA Station Network
- Other Data
- NIWA Data Infrastructure
- High Resolution Models
- Product Mgmt & Delivery System

Supporting Infrastructure

- NIWA Field Teams
- NIWA Environmental Information Teams
- NIWA Database Teams
- NIWA Science
- HPC Facility + Support Team
- 24/7 Operational FC Team

- Deployment: web services, widgets, GIS
- Professional Visualisation Software

- NIWA System Development Team
- Studio & Presenters Team



NIWA Data (Climate, Rivers, Oceans)

• Historic analyses and statistics (flood, rain, sea level, ...)

• Real-time data and sensor control systems

• Forecast and Outlooks

Climate Change and Land, Water, and Energy impacts





Past

Present

NIWA Data as Open Standard Data Services

- NIWA Data Catalogues Catalog Services
- NIWA Station Directory Web Feature / Map Services
- NIWA Bio Data Darwin Core and Web Feature / Map Services
- NIWA Water Quality Data Web Feature / Map Services
- NIWA Ocean Data Web Feature / Map Services
- NIWA Timeseries Data Sensor Observation Services



Go the ALL BLACKS

 KGBIF INTEGRATED PUBLISHING TOOLKIT [IPT]

 Image: Second second

Hosted resources available through this IPT

							Filter:	
Logo	Name 🔺	Organisation	Туре 🖕	Subtype 🝦	Records	Last modified [†]	Last publication [†]	Next publication
	<u>The Azooxanthellate</u> <u>Scleractinia (Coelenterata:</u> <u>Anthozoa) of Australia</u>	Southwestern Pacific Ocean Biogeographic Information System (OBIS) Node	Occurrence	Specimen	931	2017-03- 28	2016-06-13	
	<u>The ceratioid anglerfishes</u> (Lophilformes: Ceratioidei) of <u>New Zealand</u>	Southwestern Pacific Ocean Biogeographic Information System (OBIS) Node	Occurrence	Specimen	172	2017-02- 14	2016-06-20	-
Question	The cnidarians collection (IK) of the Muséum national d'Histoire naturelle (MNHN - Paris) in the southwest Pacific region	Not registered	Occurrence	Specimen	15,852	2017-03- 29	2017-03-29	
G reator	The crustaceans collection (IU) of the Muséum national d'Histoire naturelle (MNHN - Paris) in the southwest Pacific region	Not registered	Occurrence	Specimen	31,562	2017-04- 11	2017-04-11	
Q matter	The echinoderm collection (IE) of the Muséum national d'Histoire naturelle (MNHN - Paris) in the southwest Pacific	Not registered	Occurrence	Specimen	14,666	2017-03- 30	2017-03-30	-



enhancing the benefits of New Zealand's natural resources



NIWA Marine and Freshwater Biological Observations

GBIF Global Biodiversity Information Facility





New Zealand Ocean Data Network



The New Zealand Ocean Data Network uses OGC standards to publish metadata and data at http://NZODN.NZ

NEW ZEALAND OCEAN DATA NETWORK

"New Zealand's marine and climate science data"

Search Ocean Data



Applications

- Climate Outlooks
- Lake Water Quality
- Fire Weather Indices
- Irrigation Decision Support
- Irrigation Scheme Control
- Pasture Growth Forecasts
- Hydro Energy Status





Taihoro Nukurangi THE NEW ZEALAND WATER MODEL TM

-N-I-WA

1 1 2 -

THE NEW ZEALAND WATER MODEL TM – SETTING



enhancing the benefits of New Zealand's natural resources

Taihoro Nukurangi

NIWA

THE NEW ZEALAND WATER MODEL TM – MAJOR COMPONENTS

Continuous 'knowledge transfer' between components

Multiple geospatial sources and sparse observations

SURFACE WATER FLOW MODEL Based on TOPNET modelling system

GROUNDWATER FLOW MODEL Based on equilibrium water table model THE NEW ZEALAND WATER MODEL TN

Taihoro Nukurangi

Manaaki Whenua Landcare Research

NATIONAL

GEOSPATIAL

DATABASE

Catchment-scale

hydrological parameters

WATER AGE MODEL Based on age tracer transport simulations

MODEL

Taihoro Nukurangi

THE NEW ZEALAND WATER MODEL TM – MAJOR APPLICATIONS

Hydrological Investigations (3) Across region Receiving environment **Regional** – Water related consenting across National (1) activities (eg electricity, irrigation) Science Investigation Framework Water trading Policy modelling (eg water trading "Setting the scene" region-FMU) **Environmental flows** Improved water resource planning capabilities Improved SOE reporting (water accounting/source) Hydrological forecasting NPS-FM (FMU) (2) and hazard Limit setting Scenario testing Climate change Dynamic HUC **Environmental flows**



Building a New Zealand Flow Forecasting System





A New Zealand Flow Forecasting Delivery System





• Flow forecasting system for New Zealand?

- Local, regional council forecast models
- Current observed flow (e.g. LAWA)
- National hydrological model (NIWA with GNS-Landcare)
- What would provide value? Who are the users?
 General public, recreational users, emergency services...?

• Delivery mechanism for national flow forecast?

- Mobile app?
- Website?
- Videos?



Questions?

What the h... is



