A platform-based approach to delivering climate intelligence at scale for informing risk & resilience in the western tropical Pacific

KE4CAP EU-Japan BKE Event #2: 'Exploring the Potential for Linking Platforms to Enhance Action, including in the Asia-Pacific Region'

CLIMATE SCIENCE CENTRE
www.csiro.au

Australian Aid

Australian Government
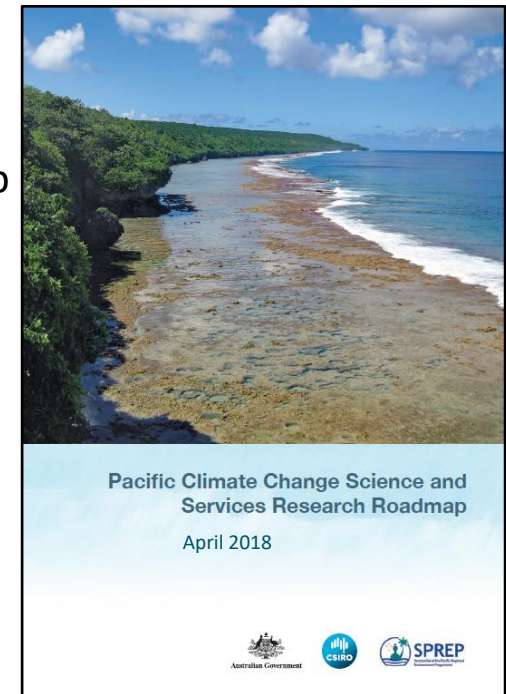Department of Foreign Affairs and Trade

SPREP
Secretariat of the Pacific Regional Environment Programme

CSIRO

CSIRO Pacific engagement:

- CSIRO/SPREP collaboration (MOU) focus:
  - Pacific climate change science and services research roadmap
  - Climate risk & resilience for sectoral applications in partner PICs
  - Physical and transitional risk
  - Enhanced engagement with the private sector
  - Support for Pacific Climate Change Centre (PCCC)
  - Support for AP-Plat Partnership

Pacific Climate Change Science and Services Research Roadmap
April 2018

- Current priorities:
  - DFAT/APCP-funded Pacific NextGen Projections
  - GCF-funded Vanuatu Climate Information Services for Resilient Development (Van KIRAP)
  - Regional Climate Consortium: Asia-Pacific (RCCAP) portal
  - INDRA Pacific: regional platform for digital delivery of climate intelligence

NextGen projections for the western tropical Pacific
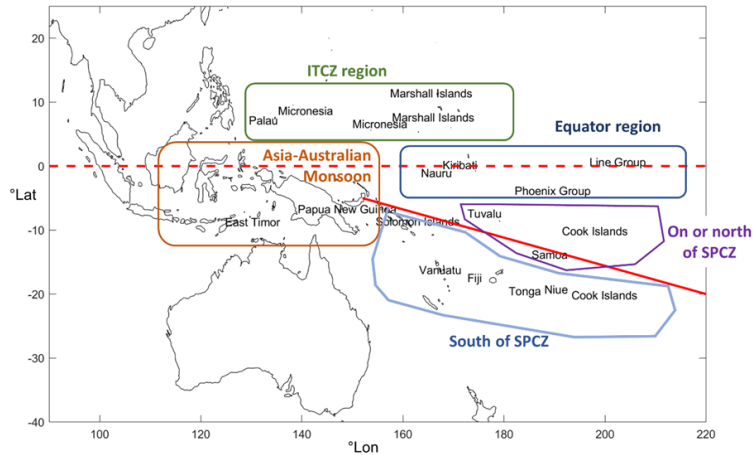
- CMIP5-based updates (CMIP6 updates pending AR6 release of full GCM archive)
- Standardised scenarios & storylines
- 5 x sub-regions, nationally contextualised
- Multiple formats/more salient for sectoral applications
- Multiple hazards: temp, rainfall, TCs and SLR (SROCC configured)

- Sectoral case studies
- Guidance materials: hazard-based impact assessments, sectoral applications
- Communication products
- INDRA Pacific: visualisation and geo-spatial referencing (regional > national > sub-national)
- Peer-reviewed literature

LOW emissions ([1]RCP2.6) *Sustainability pathway ([2]SSP1)* Warmer: +0.6 °C Drier: around -10% annual rainfall (SPCZ moves **NORTH**)	**LOW** emissions (RCP2.6) *Sustainability pathway (SSP1)* Much warmer: +1.3 °C Wetter: around +10% annual rainfall (SPCZ moves **SOUTH**)
HIGH emissions (RCP8.5) *Fossil-fuelled pathway (SSP5)* Much warmer: +1.0 °C Drier: around -10% annual rainfall (SPCZ moves **NORTH**)	**HIGH** emissions (RCP8.5) *Fossil-fuelled pathway (SSP5)* Hotter: +2.1 °C Much wetter: around +20% annual rainfall (SPCZ moves **SOUTH**)

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INDRA: Digital platform delivery of climate intelligence

- Enhanced visualisation, geo-spatial referencing and analytics of climate change data and information
- Informing hazard-based impacts, vulnerability and risk assessments
- Sectoral case studies and guidance materials

- Key design features:

LARGE-SCALE DATA ANALYSIS

Scalable (local to global), web-based and cloud-supported

TRUSTED DATA

Federated approaches to ensure convenient, trustworthy and transparent data access

GEOSPATIAL Referencing

Geospatial referencing at infrastructure scale using advanced data analytics

RESEARCH BACKED

Based on extensive, peer-reviewed climate and impact modelling and data science

FIT FOR PURPOSE

Tailored applications with strong understanding of market-based user needs and requirements

PARTNERSHIPS

CSIRO supported with strategic partnerships in key markets including Asia-Pacific (SPREP and AP-Plat)

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INDRA: Product and delivery models

| INDRA Core	INDRA custom product	INDRA product builder
Global scale end-to-end product for asset risk assessment	Location and application specific product development but needs to **be a large scale product that feeds into core INDRA development**	Location and domain specific product
Out of the box weather/climate/hazard data	Can use custom weather/climate/hazard data.	Weather/Climate/Hazards Data provision via API's for product build
Out of the box analytics using PowerBI or similar	Can develop custom analytics.	Analytics provision via API's for product build
Out of the box geospatial visualisation using MapBox	Visualisation can be customised based on client needs	Can either provide MapBox based code base for developing product or partner can develop their own front end
Import/export functionality in csv and geospatial formats (GeoTIFF, Shapefiles and GeoJSON)	Import/export functionality in csv and geospatial formats (GeoTIFF, Shapefiles and GeoJSON)	Will provide import/export functionality in csv and geospatial formats via API's
Developed by INDRA team	Developed by INDRA team	Developed by partners under license from INDRA team and with support provided from INDRA team
Available under an existing commercial license	Licensing based on product needs (negotiable)	Licensing based on product needs (negotiable). Licensing will be modular based on INDRA modules needed to build product

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# INDRA Pacific: Architecture and framework

- core/custom product and/or product builder to deliver (front-end) domain centric regional/national instantiations (e.g. INDRA Vanuatu/Van KIRAP)
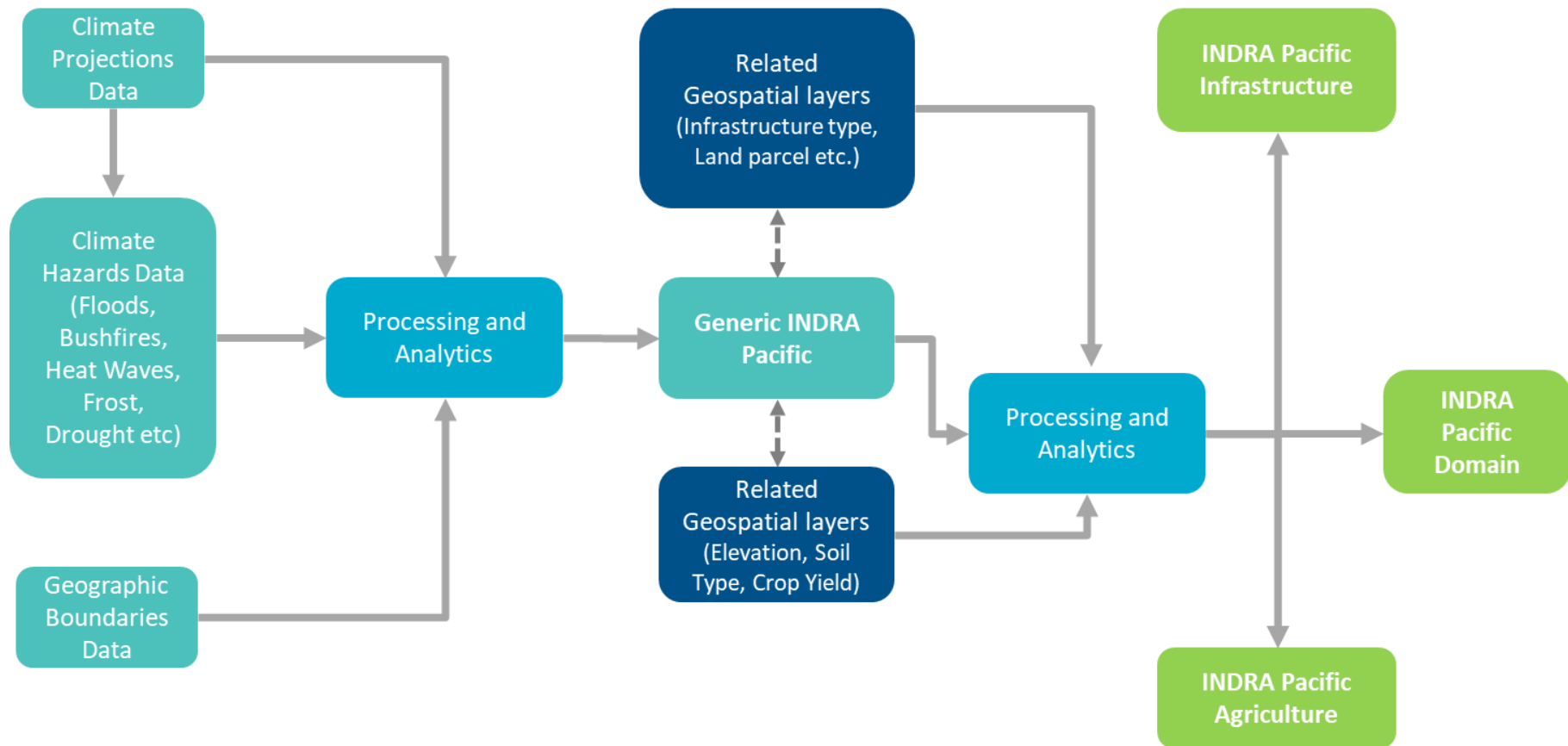
INDRA Pacific: Functionality & utility
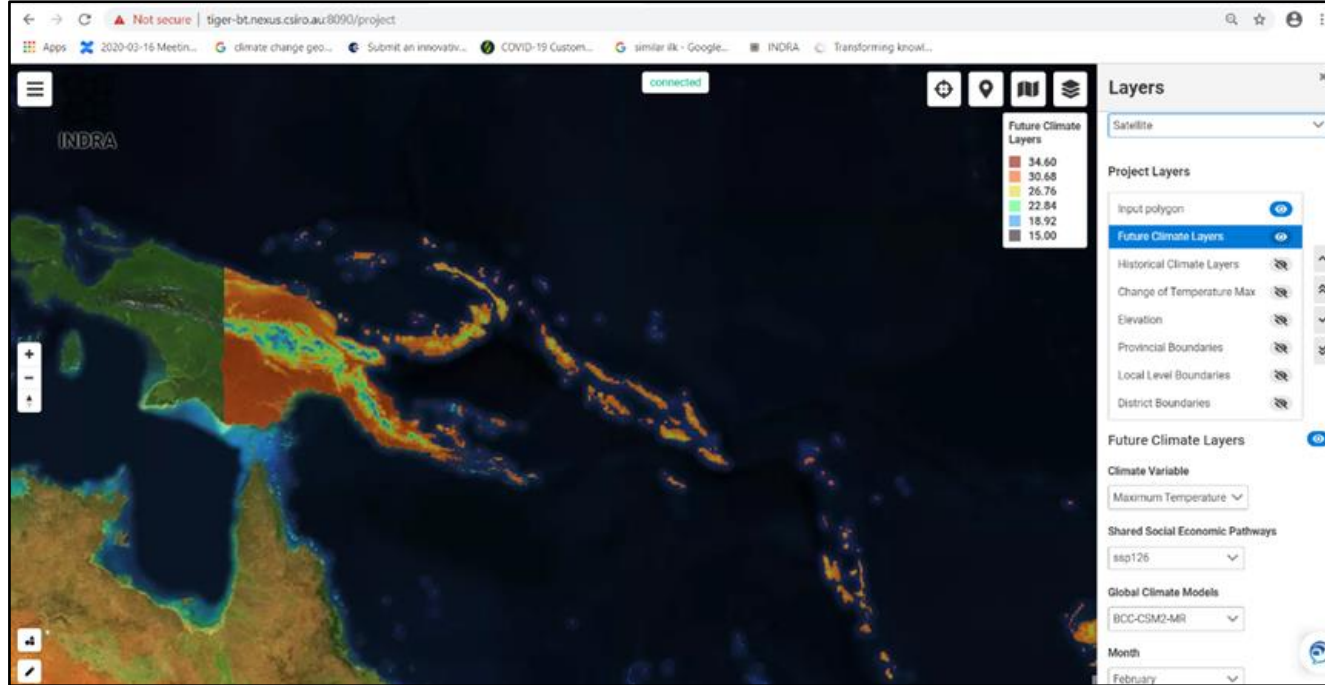
- *Web based*
- *Cloud enabled*
- *Infinitely scalable*
- *Embedded Analytics*
- *Fully featured GIS functions*
- *Range of base layer styles supported*
- *BYO GIS layers*
- *Region focussed export functionality*
- *Regional resource for the western tropical Pacific*

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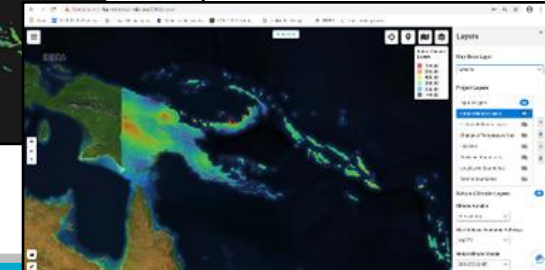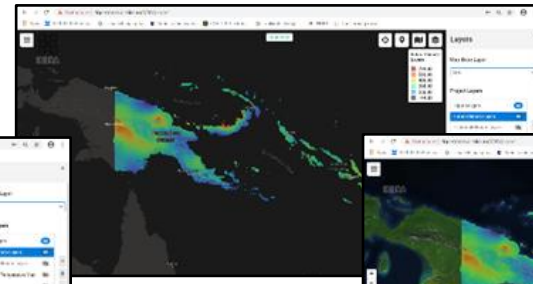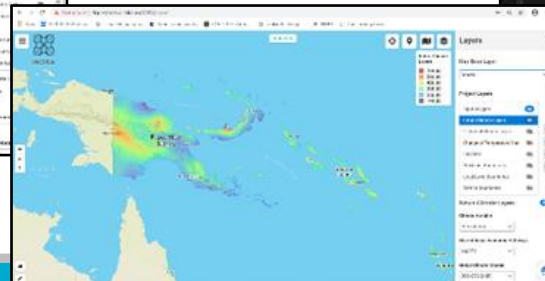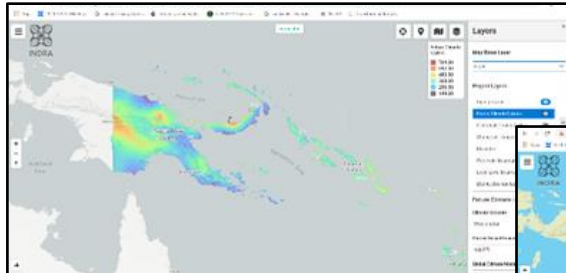
Opportunities & Next Steps

Coordinated approach to new governance arrangements for development and delivery of best-practice web-based climate intelligence platforms in the western tropical Pacific??

Scope:

- Consolidation and rationalisation: Collaboration, alignment/leveraging, realising synergies, facilitating innovation….fewer, more effective and efficient platforms?

- More integrated (federated?) approach to developing and delivering climate intelligence at scale

- 'Seamless' approach to knowledge exchange across full spectrum of decision-making

- Co-design: elevating end-users (UX) into the decision-making

- Co-production: public-private partnerships (n.b. emergence of consultancy/SME sector)

- Development: Effective and efficient, innovation pipeline (n.b. emergence of AI/ML)

- Content: utility/functionality, consistency and standards, open-source and user-pays (n.b FTO)

- Delivery: Administration, maintenance, updates/continuous improvement >>> sustainability

- INDRA Pacific roadmap: CSIRO INDRA Pacific & NIES AP-Plat/CMIP6 projections viewer?

- Role for the AP-Plat partnership?

Thank you

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Australian Government
Department of Foreign Affairs and Trade

Australian Aid

Australia-Pacific Climate Partnership

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Environment Programme

https://www.csiro.au/en/about/challenges-missions/climate-mission

www.pacificclimatechange.net   www.pacificclimatechangescience.org   www.rccap.org