C-48

OzEWEX

Co-Chairs
Albert van Dijk
Seth Westra

Presenting
Jason Evans

The Australian Energy and Water Exchange Initiative

Overarching science question:
Understand and predict Australia's fresh water resources and water security into the future given Australia's many climate zones, relatively large climate variability and future climate change.

- promoting and facilitating data sharing
- collaboration and engagement between researchers, data providers, research users, resource managers and research managers.

Working groups around science priority areas:
1. Observational Data
2. Model Evaluation and Benchmarking
3. Data Assimilation
4. Trends and Extremes
5. Vegetation Processes
6. Hydrological Prediction

Working group activities:
- organising workshops
- data collection, collation and hosting
- collaborative experiments and development.
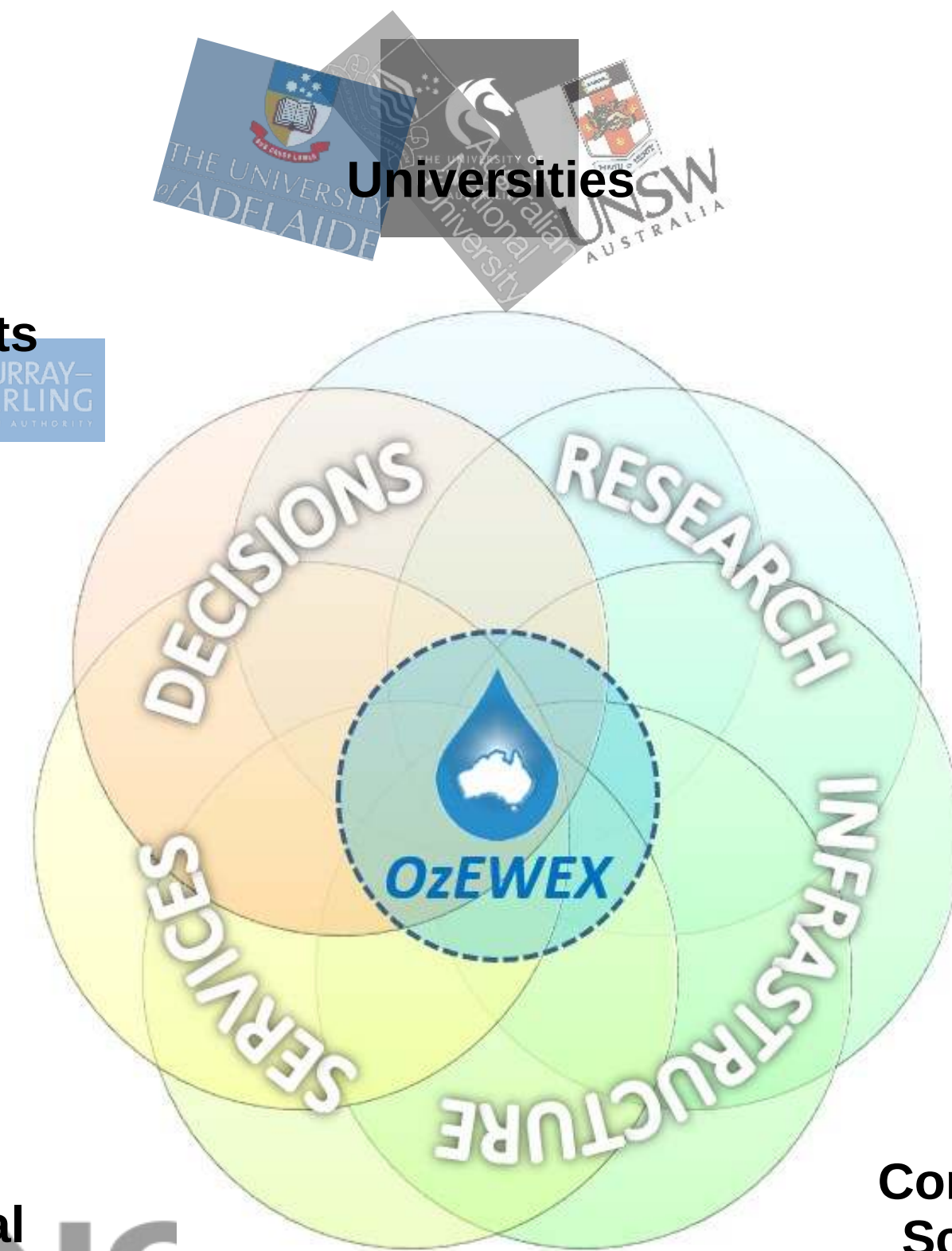
Who?

Universities

Governments and Water Managers

ARC Centre of Excellence for Climate Extremes

Bureau of Meteorology

OzEWEX

DECISIONS RESEARCH SERVICES INFRASTRUCTURE

Terrestrial Ecosystem Research Network (TERN)

National Computational Infrastructure

Commonwealth Scientific and Industrial Organisation (CSIRO)

Activities include

- Soil Water Estimation and Evaluation Project (SWEEP)
- Further development of the Protocol for the Analysis of Land Surface models (PALS) system
- Special issue in Climatic Change on Australian Natural Hazards

Climatic Change

https://link.springer.com/journal/10584/139/1/page/1

Articles explore our understanding of historical and projected changes to Australian Natural (climatic) Hazards
- Floods
- Droughts
- Coastal Extremes
- Heatwaves
- Extreme Bushfires
- Stroms, Wind and Hail
- Frost

Natural Hazards in Australia: Floods

Fig. 3: Bars showing median and the 10th to 90th percentile range of projected change in daily rainfall for 2080–2099 relative to 1986–2005 for RCP8.5. Each box shows from left: (a) annual mean rainfall based on a set of 39 models and from a consistent subset of 21 CMIP5 models the (b) annual mean rainfall, (c) annual maximum daily rainfall, and (d) 20 year return level of the annual wettest day rainfall. Blue indicates increase and brown indicates decrease. The Australia average results are shown in the bottom left. Reprint from Figure 7.2.13 in CSIRO and Bureau of Meteorology (2015)
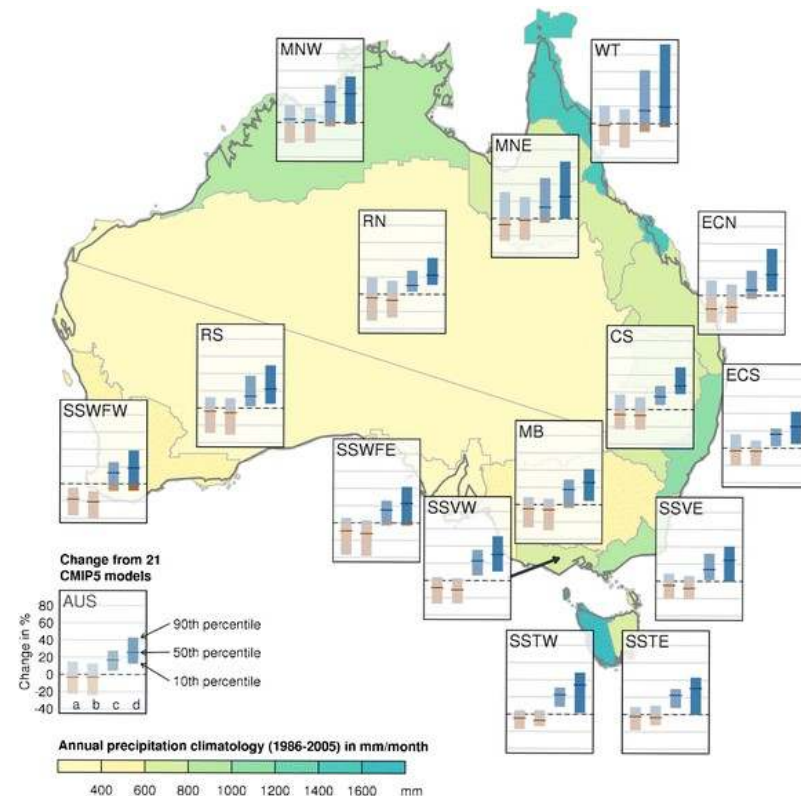
Natural Hazards in Australia: Storms, Wind and Hail

Fig. 1: Ensemble composites of summer (DJF: top row) and winter (JJA: bottom row) ECLs with a maximum wind speed greater than 20 ms−1 from the NARCliM ensemble for the recent past (1990–2010: left column) and the future (2060–2079: right column). Coloured contours and vectors indicate wind speed while solid line contours indicate the sea level pressure. The ensemble-mean number of events within the composite is indicated to the top-right of each panel

National Workshops

The Australian Energy and Water Exchange
OzEWEX 2(
1st national workshop | Canberra, ACT | 28–2

OzEWEX Spatial hydrology: observation, modelling and forecasting
THE AUSTRALIAN ENERGY AND WATER EXCHANGE RESEARCH INITIATIVE
2nd National Workshop | Broadbeach, QLD | 2nd December 2015

OzEWEX Fostering a research community culture: catalysing collaboration between universities, agencies and decision makers
THE AUSTRALIAN ENERGY AND WATER EXCHANGE RESEARCH INITIATIVE
3rd national workshop | Canberra, ACT | 14-15 December 2016

A National Environmental Observation and Prediction System for the year 2030
OzEWEX
2017 THE AUSTRALIAN ENERGY AND WATER EXCHANGE RESEARCH INITIATIVE
4th national workshop
6 December 2017, Hobart

Annual Australian Climate and Water Summer Institute

15 students from Australia and New Zealand
- Work in small teams for 6 weeks on projects developing an application or improvement to data services and analysis tools
- Partnership between universities and government agencies
- Summer Institute consortium partners:CSIRO, Bureau of Meteorology, Geoscience Australia, Murray-Darling Basin Authority, National Computational Infrastructure, Bushfire and Natural Hazards CRC, ARC Centre of Excellence for Climate System Science, several universities

Outreach through website and Newsletter

http://ozewex.org/