NATURAL HAZARDS
RESEARCH FORUM

STREAM 3 WORKSHOP 3

Severe weather impact prediction

Dr Mike Rumsewicz

Liza Gelt

Rosie Tran
Collaborative Consulting

Dr Harald Richter
Bureau of Meteorology

Craig Arthur
Geoscience Australia

slido
SCAN TO PARTICIPATE
CODE: NHRF23

@hazardsresearch

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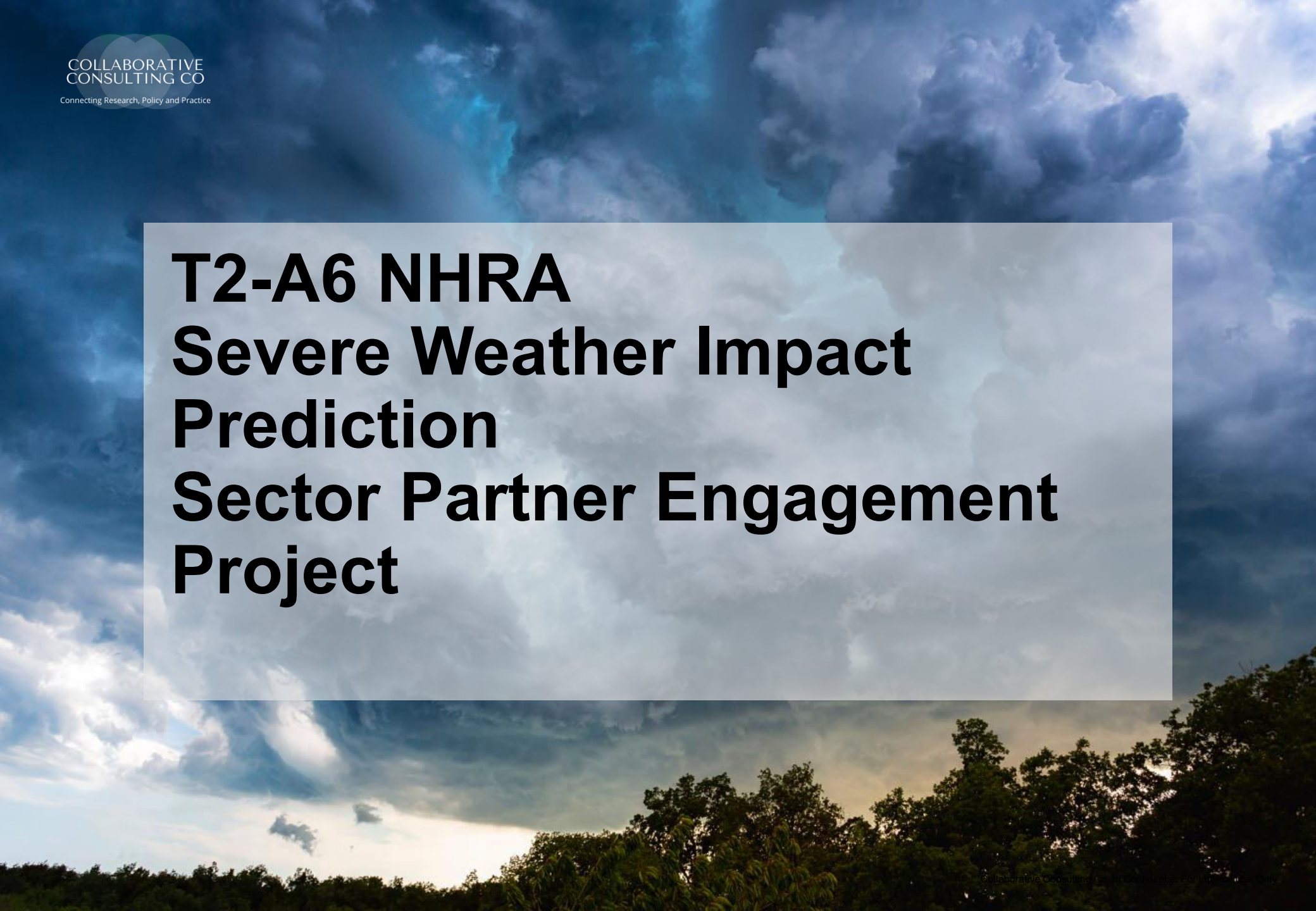

T2-A6 NHRA Severe Weather Impact Prediction Sector Partner Engagement Project

Overview

Focused on impact from two hazards:

1. **Wind for large-scale systems**
2. **Severe thunderstorms** involving wind, hail and/or rain

Research Questions

1. How can **impact- and exposure-based forecasts** be designed to **inform decision making** for planning, preparedness and response? What decisions and outcomes will be improved?
2. What **different types of information** (and in what format) are required by **different user groups** (e.g. a planning officer or a first-responder)?

The Impact Triangle

- Location-based asset information

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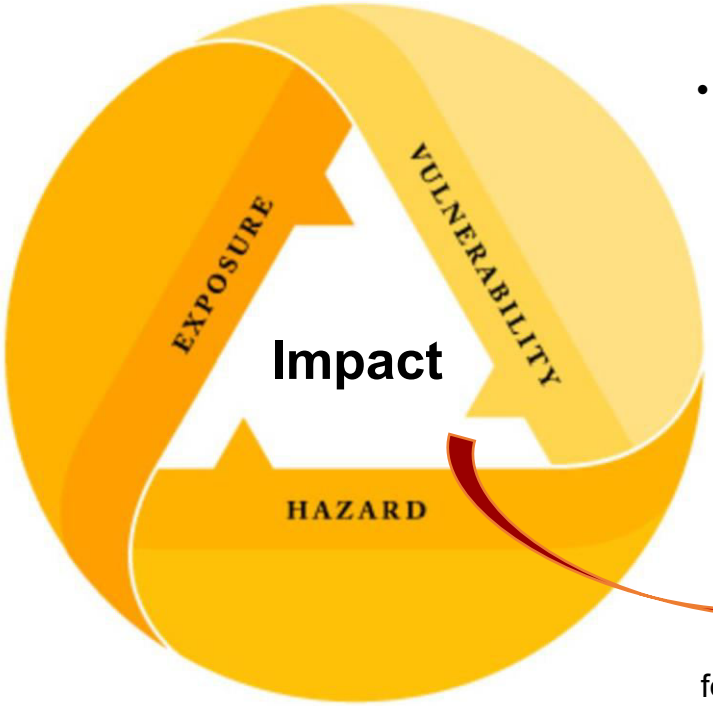
Australian Exposure Information Platform (AEIP)



- Asset vulnerability – Location and characteristics including structural, economic and demographic.

Geoscience Australia databases

This project – how do response agencies want **potential impact to be communicated**?

- Large-scale winds
- Severe thunderstorm

Forecasts from **Bureau of Meteorology**

Natural Hazard Impact and Risk Service (NHIRS)

Map-based depiction of potential impacts from forecast weather events (automatic assessment service)

Damage State

- Complete
- Extensive
- Moderate
- Slight
- Negligible

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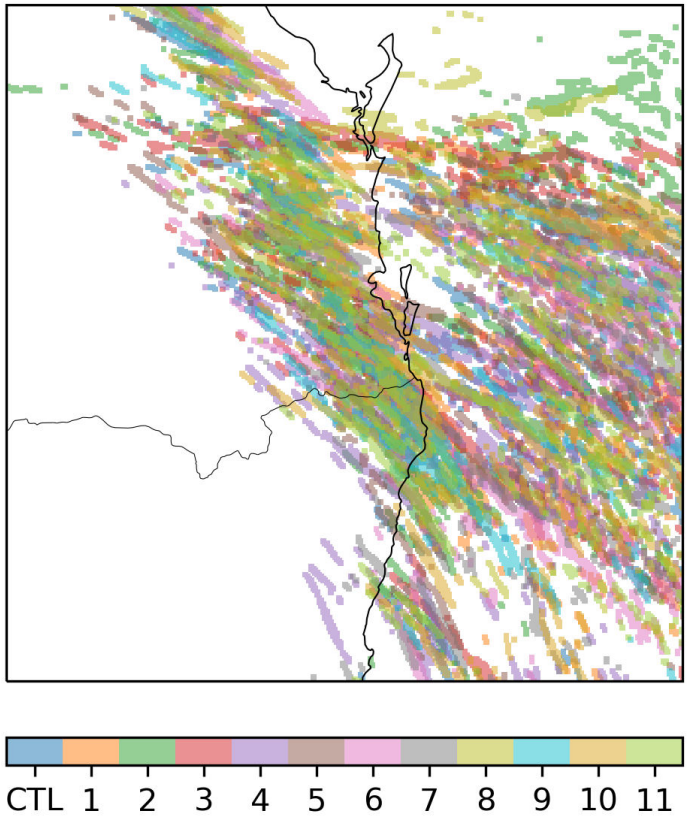
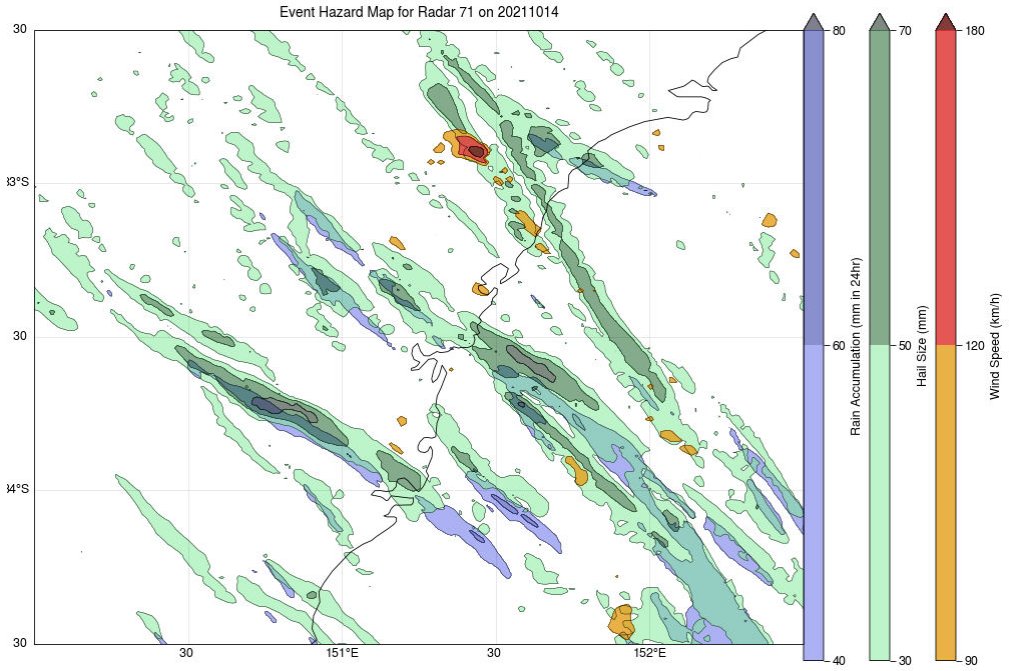
Bureau of Meteorology – Thunderstorm Footprint



Forecast of potential thunderstorm footprint (out to 1.5 days) can alert users to potential impact (exposure estimates)



Radar-diagnosed storm hazard footprint for rain, hail and wind
(Diagnosis)

Geoscience Australia Capability

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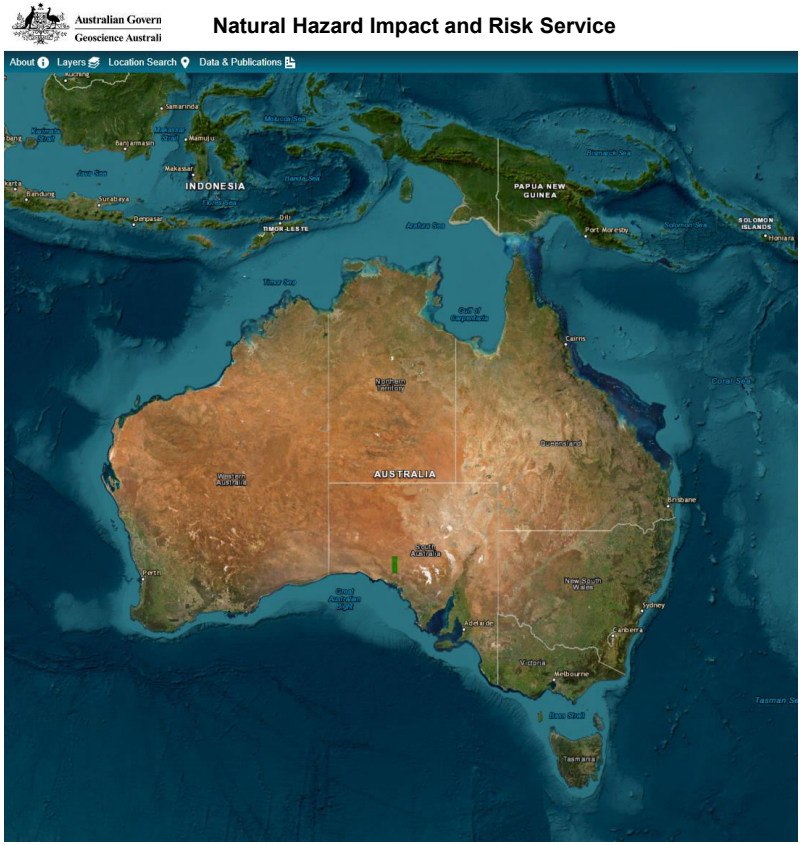

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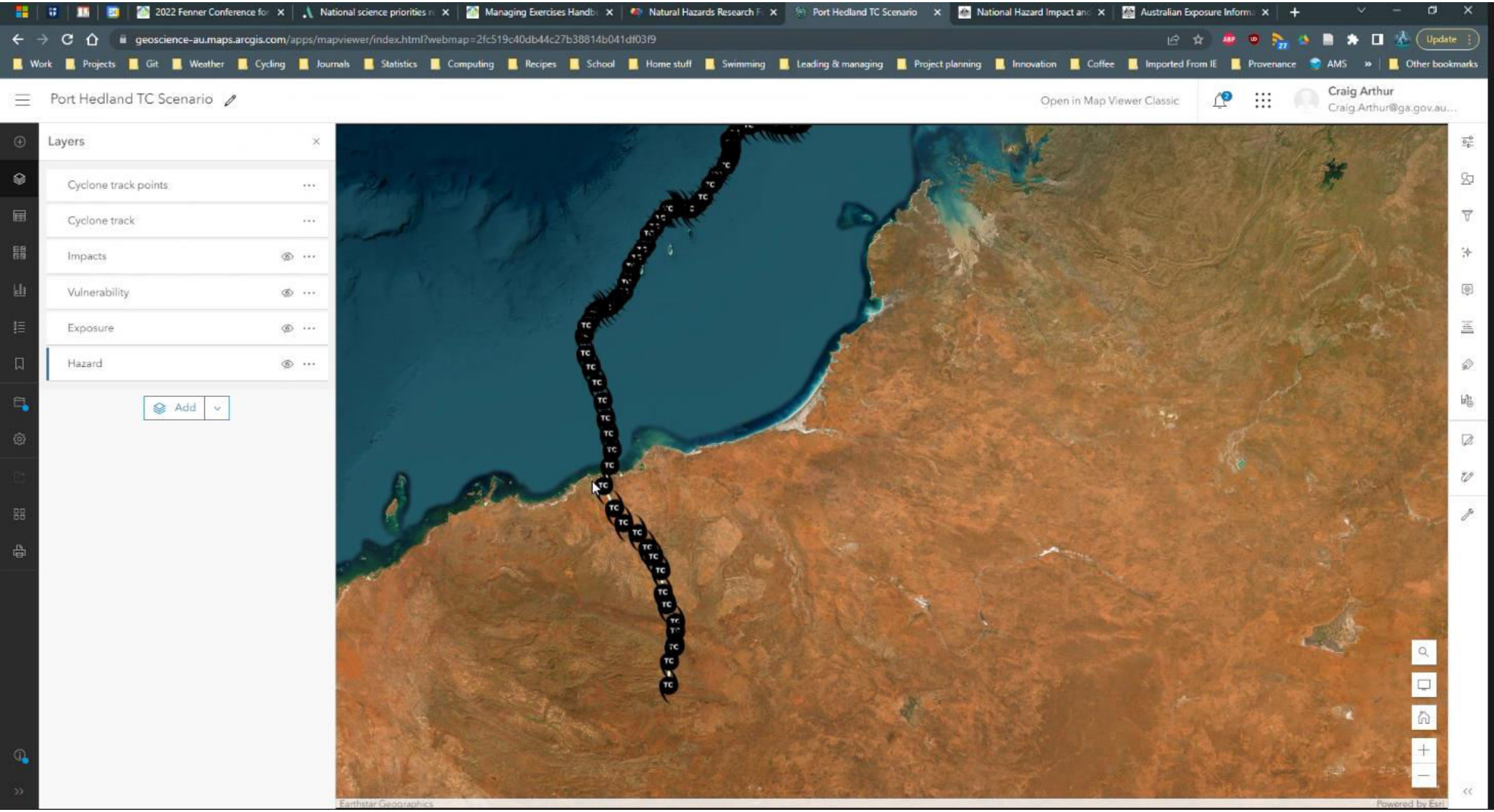

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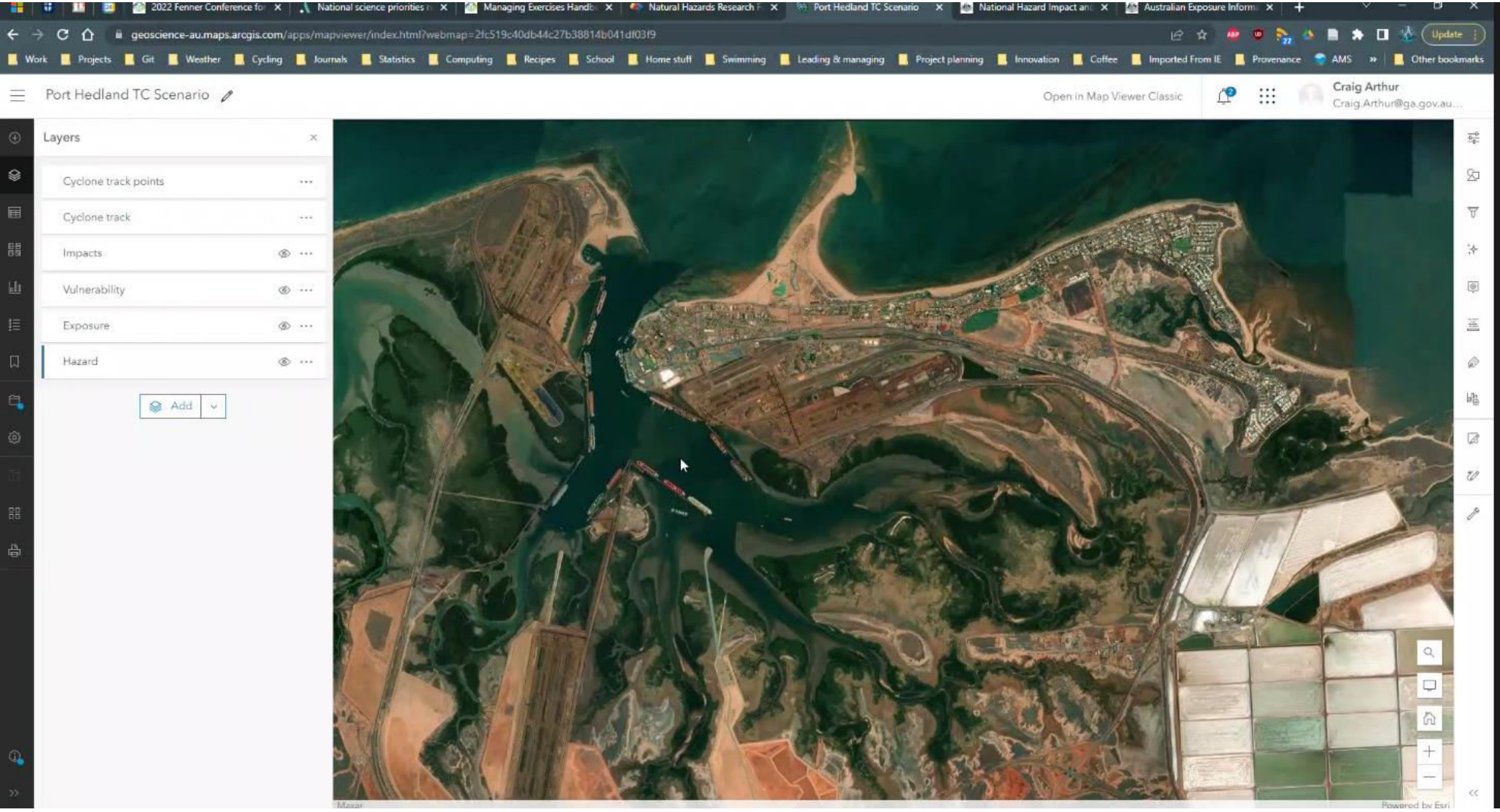

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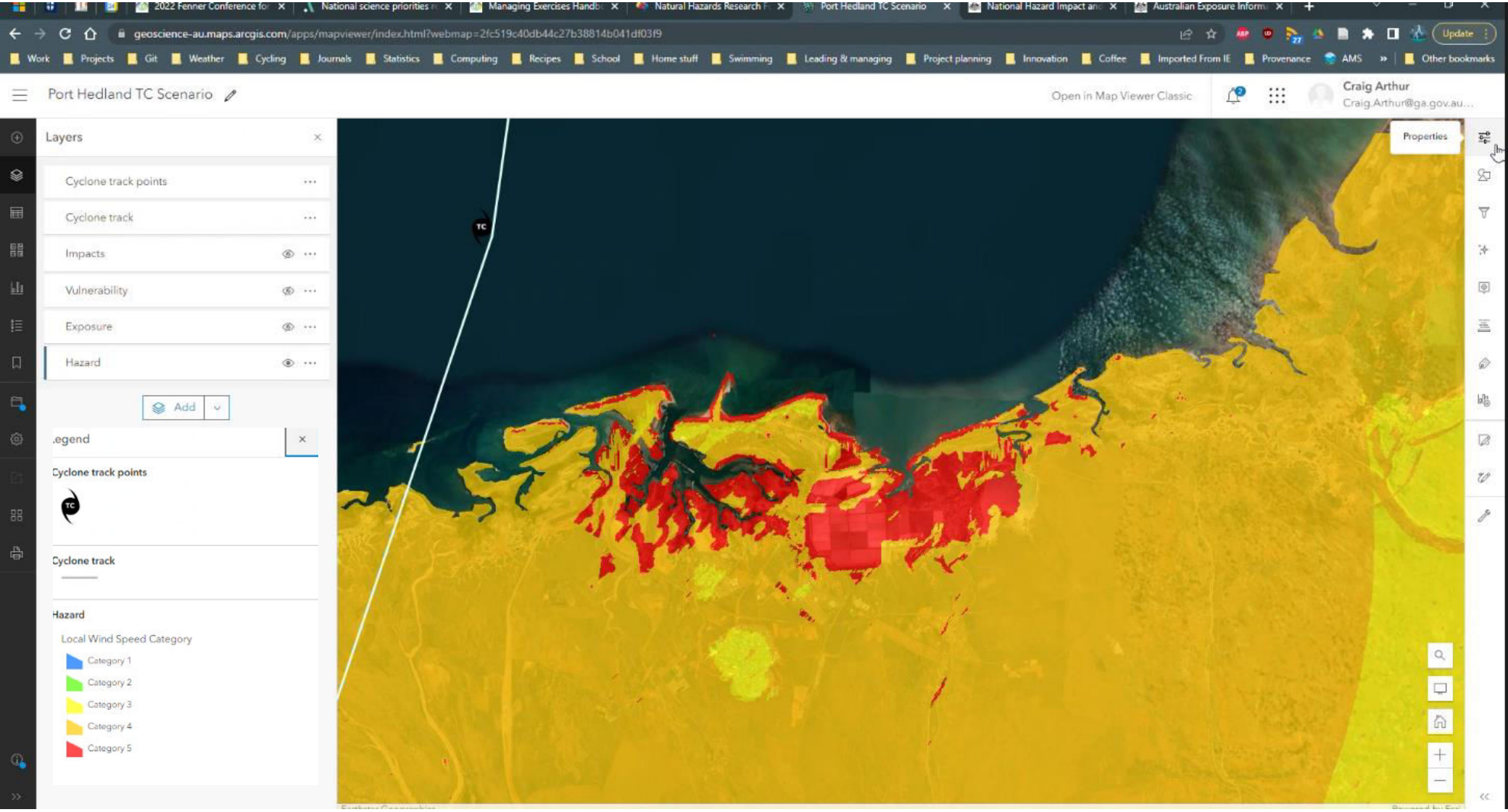

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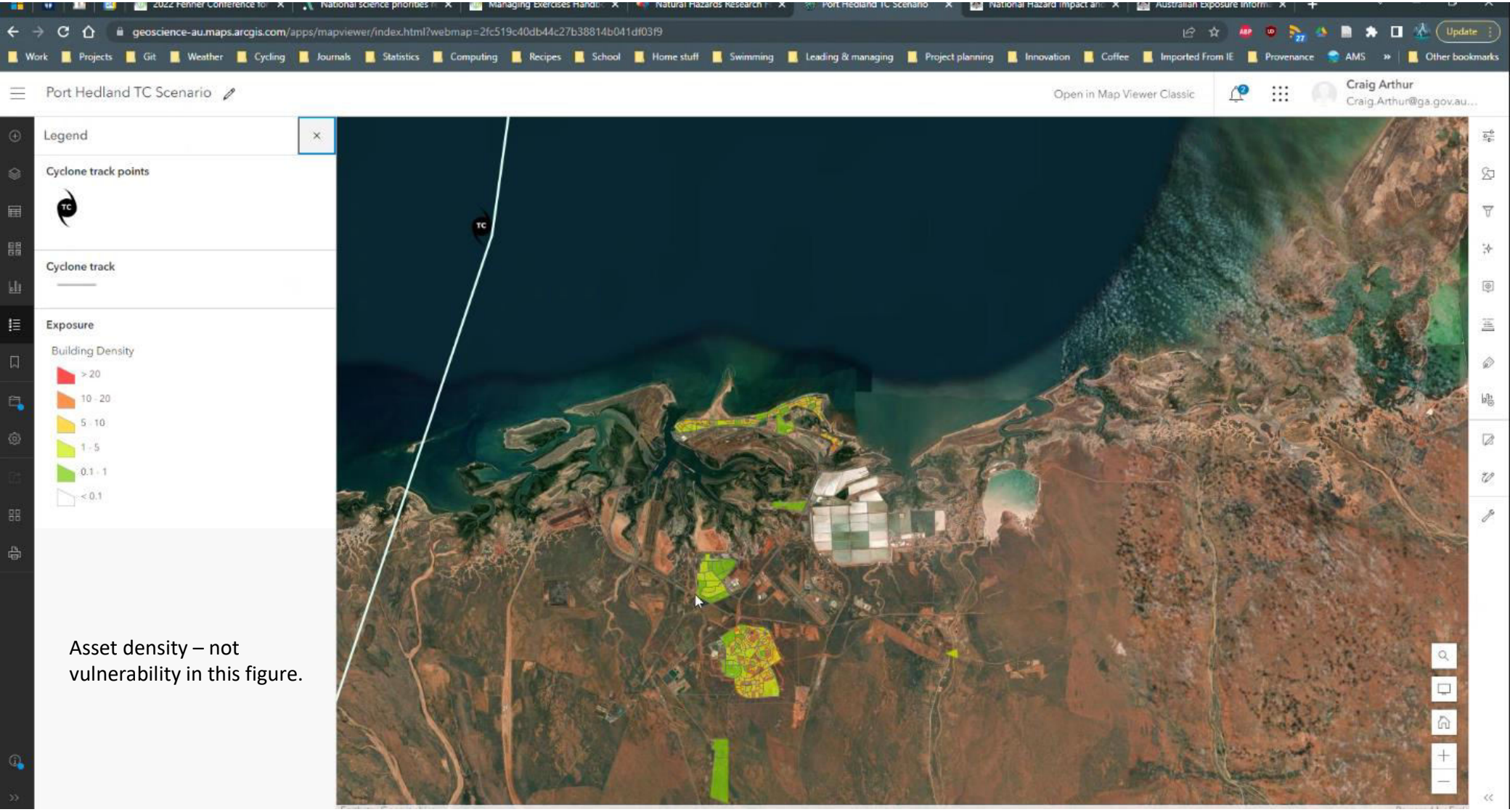

Asset density – not vulnerability in this figure.

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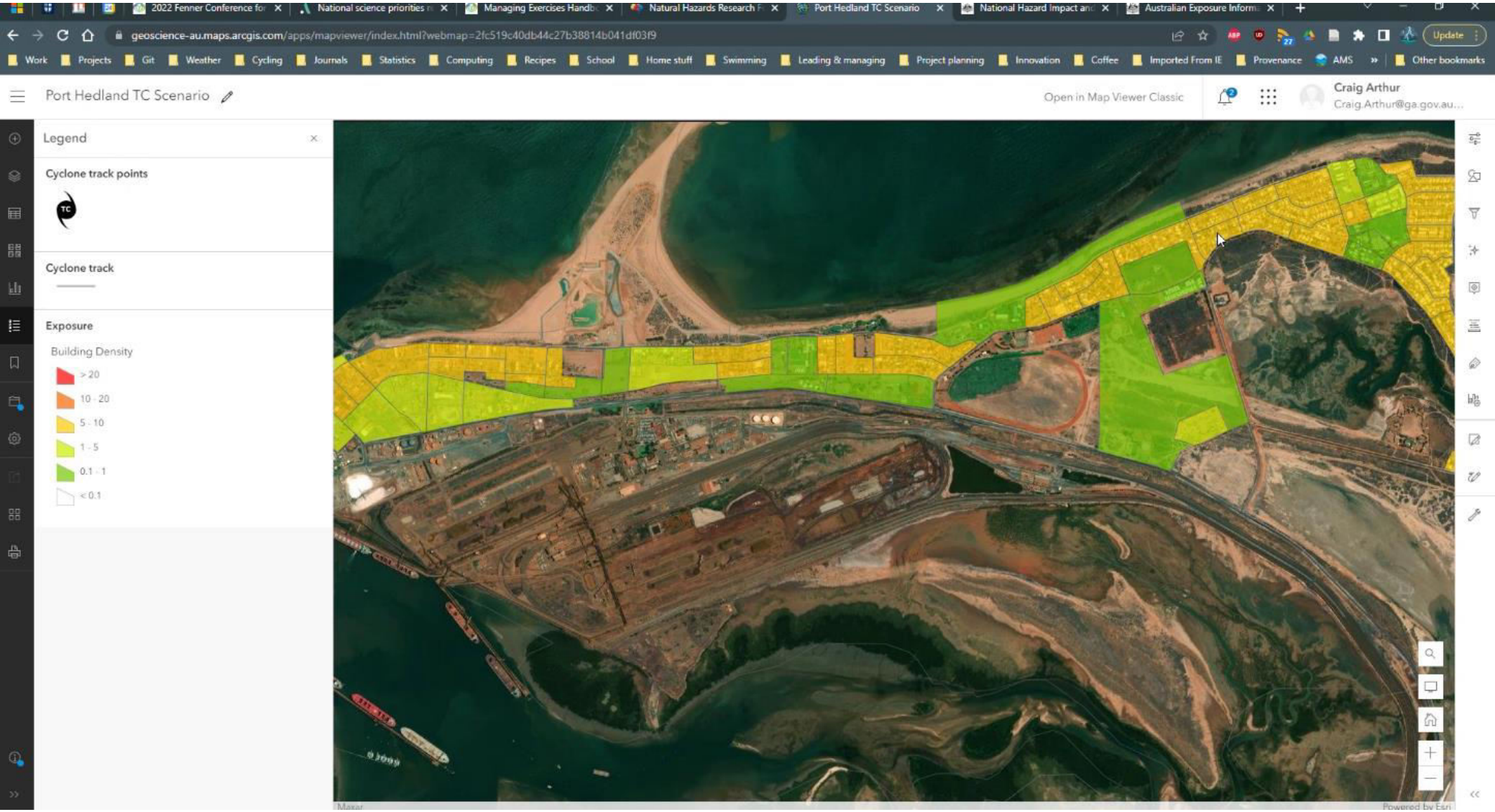

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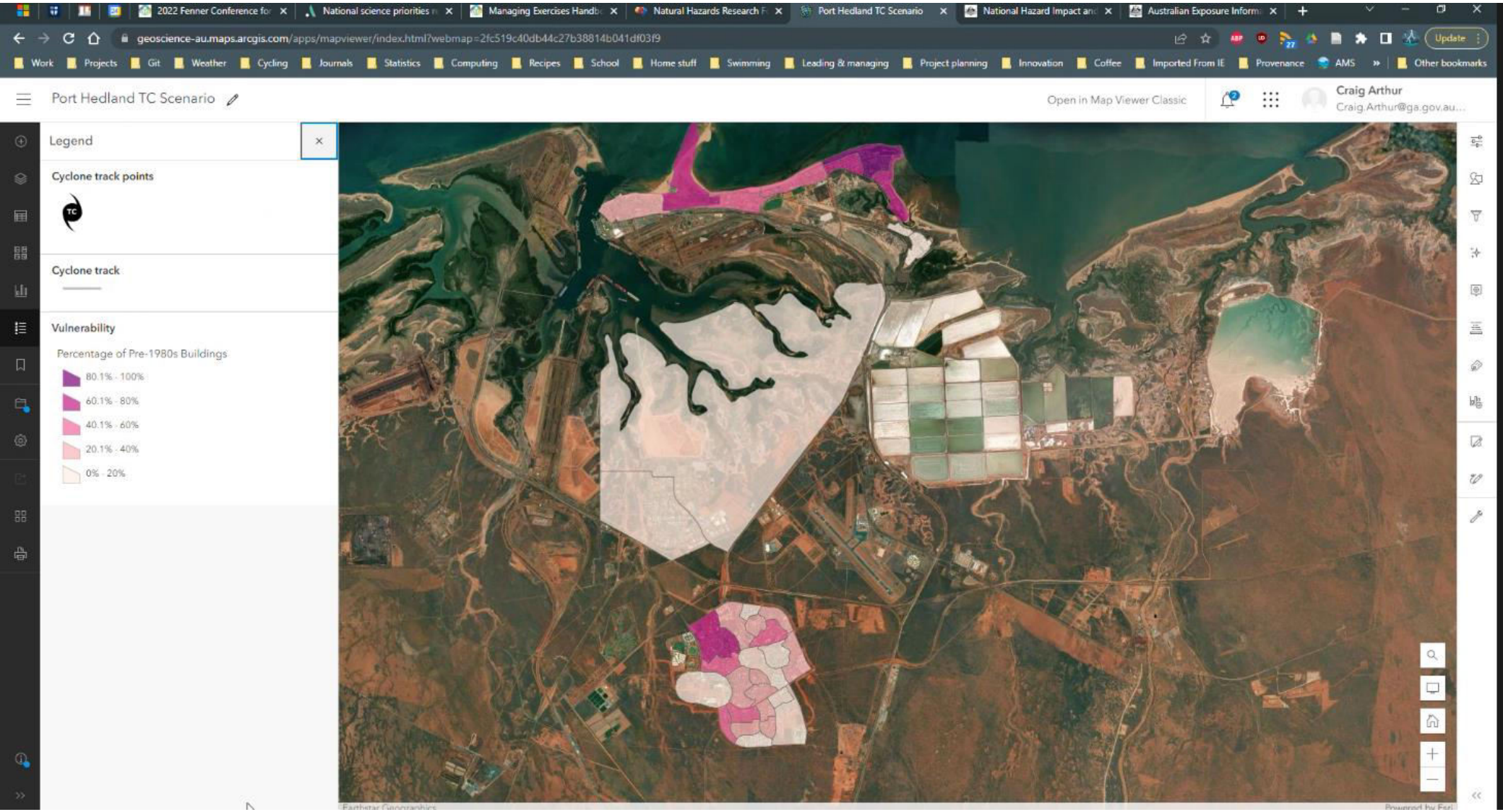

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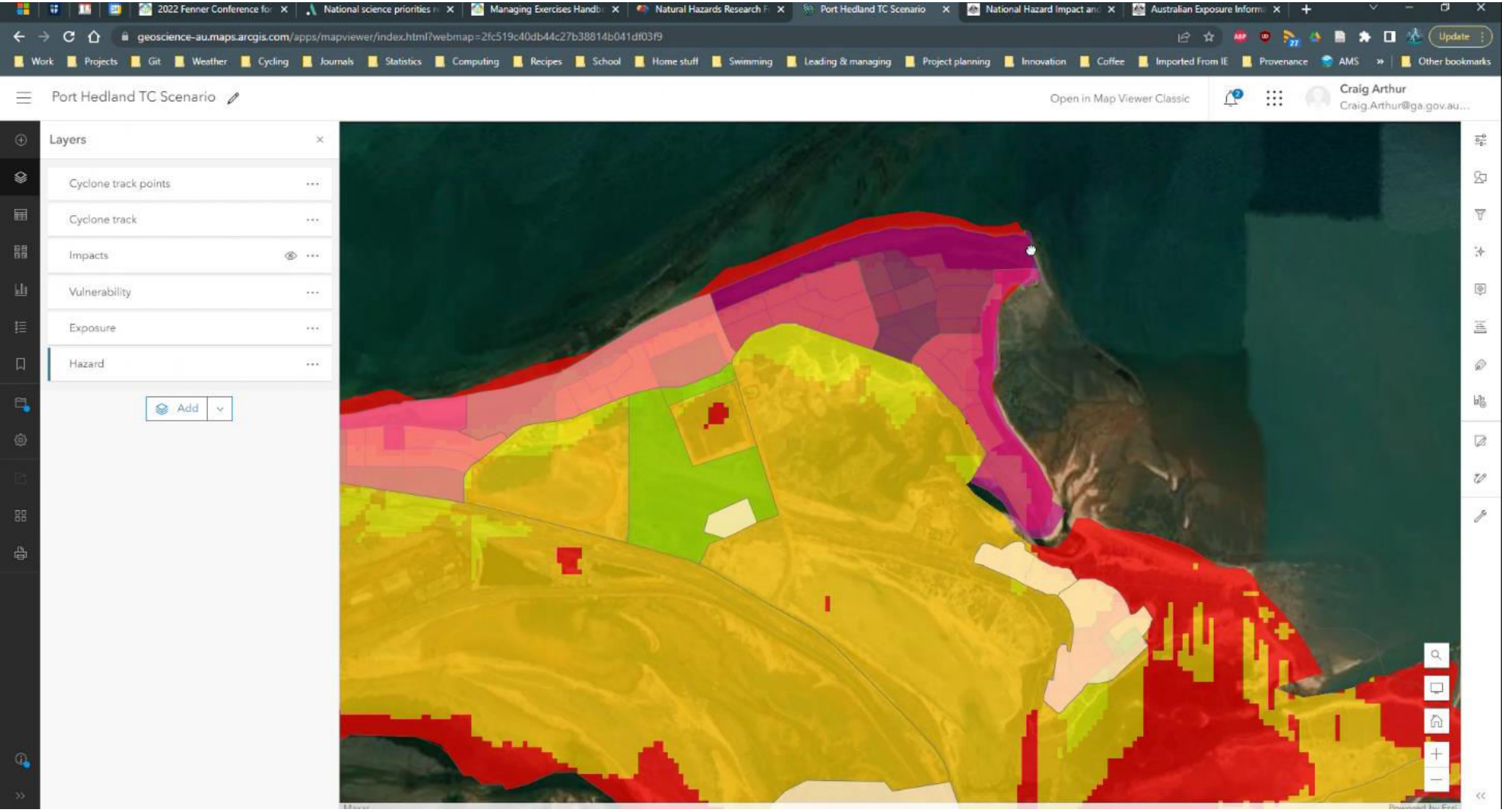

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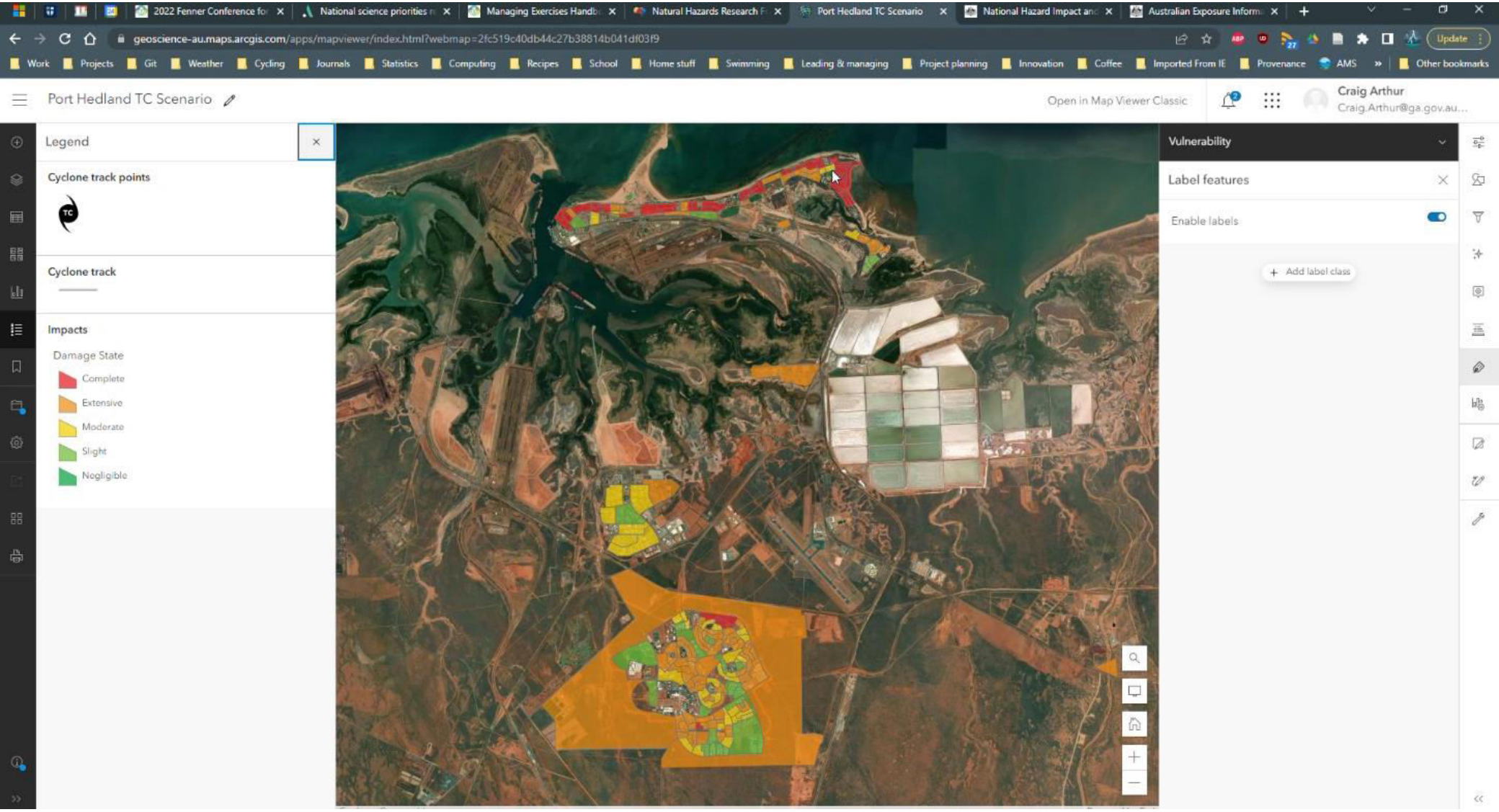

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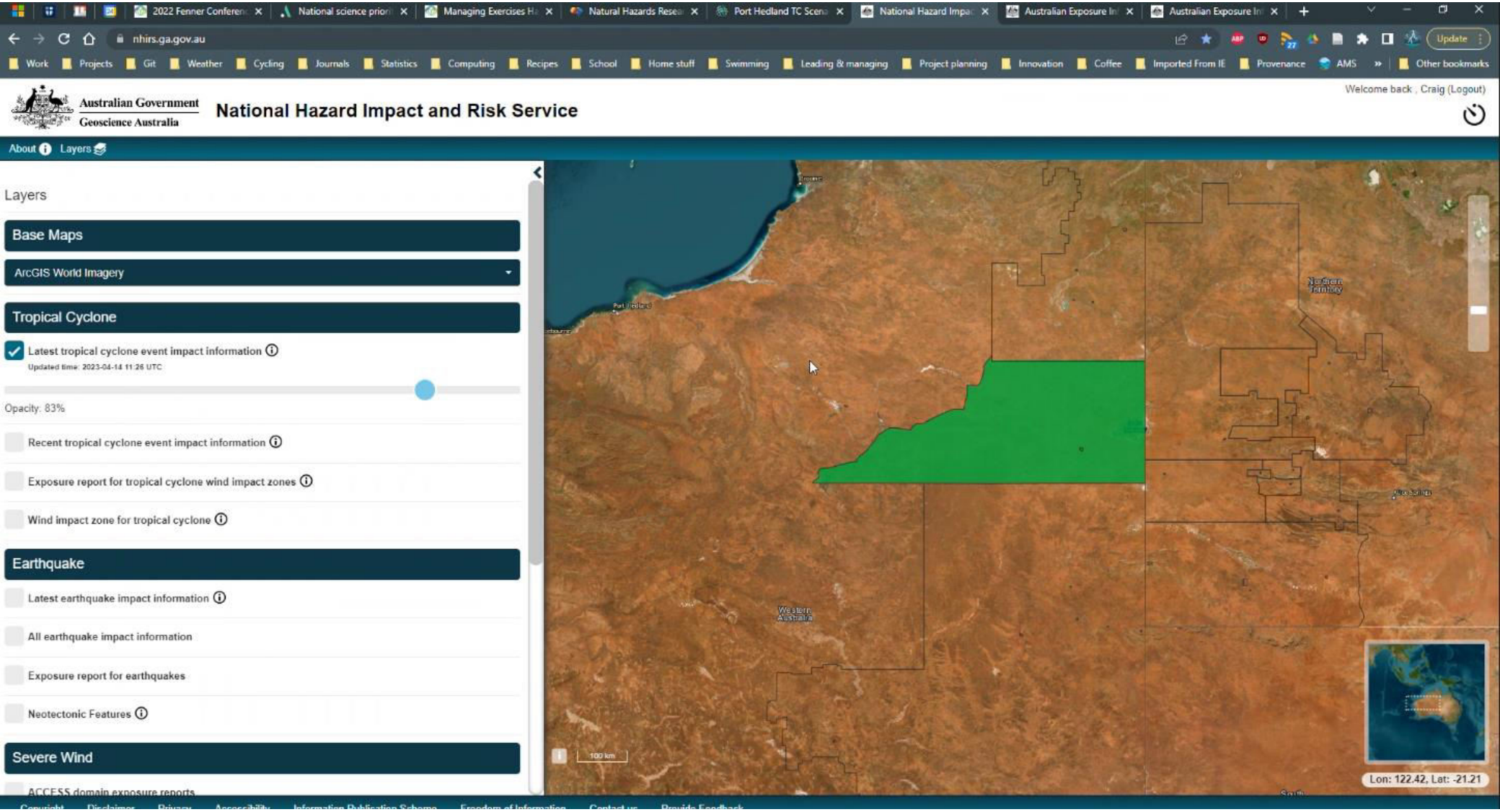

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Research Objectives

What information do decision-makers need?

1. Engage **sector partners** to better understand their **information requirements** for **large scale wind (LSW) impact-based forecasting and Severe Thunderstorm (STS) exposure**.

2. Better understand how **modelling outputs can be used to improve decision making**, as well as the **communication and information needs** required by different end-user groups.

How do sector partner information needs inform the technology roadmap?

3. Provide **guidance and direction** for improving severe weather impact-based forecasting, so that impact information is useful, usable and used by the emergency services sector.

4. Provide clarity on the **scientific and technical developments** required to deliver **fit-for-purpose products, services and capabilities**, identify new research opportunities as well as identify opportunities to align or connect with other relevant research activities currently underway.

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Questions for sector partners

What decisions do you need to make when you're going to get hit with severe weather?

Consider planning, preparedness, response and recovery

slido Qs 1 and 2

Questions for sector partners

What are you currently using, if anything, to understand the potential impact of severe weather?

slido Q 3

Questions for sector partners

What information do you need about exposed assets to be more confident in your decision-making?

slido Q 4

For more information:

Sector Partner engagement (user workshops):
liza.gelt@collaborativeconsultingco.com.au

Bureau of Meteorology capability
harald.richter@bom.gov.au

Geoscience Australia capability
craig.arthur@ga.gov.au