IMPACT FORECASTING
Introducing a new project for 2017-2019

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PROJECT OBJECTIVE

To develop a pilot capability that will make useful predictions of community impacts of extreme weather with the goal of improving timely mitigating actions by a range of stakeholders.
We can finally use weather prediction models to produce meaningful impact estimates!
REGIONAL WIND FIELD
NEW BUREAU HIGH-RESOLUTION MODELS

time=1
LOCAL WIND GUSTS

Figure 1: Estimated maximum wind speed from TC Tracy in 1974, incorporating site-specific influences on the wind speed arising due to topography, terrain and existing structures.

TC Tracy
Radial profile: Holland $\beta = 1.8$
Asymmetry model: Kepert
$V_{\text{max}} = 82.6$ m/s

Arthur et al. (2008)
Vulnerability of houses varies with age (on average)
- A Tracy peak gust of $\sim 70 \text{ m s}^{-1}$ (250 km hr$^{-1}$) almost destroys a pre-1974 house
- A post-1980 house would only suffer $\sim 25\%$ damage
ASSET TYPES AND LOCATIONS

Asset Specification / Exposure:

Geoscience Australia has compiled a database of assets at risk around Australia:
NEXIS = National EXposure Information System
DAMAGE ESTIMATE
PROJECT METHODOLOGY

1) Initial focus on wind and heavy rain hazard produced by the April 2015 East Coast Low

2) Collecting datasets to derive relationships between winds/rain and damage

3) Assets: focus on residential housing

4) Produce spatial damage information

5) Trial workflow implementation and test with a range of users