Using ambient computing technology to simulate extreme climate events

COUNCIL NAME
Ku-ring-gai Council

WEB ADDRESS
www.kmc.nsw.gov.au

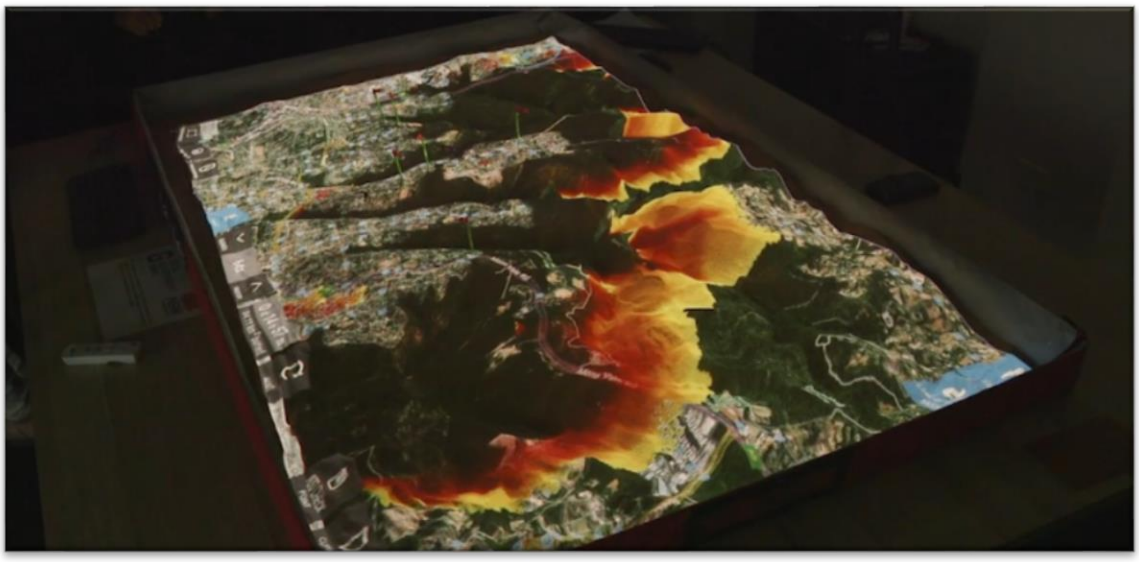
SIZE
86 square kilometres

POPULATION
126,000

Overview of the project

The threat of extreme fire weather due to climate change is increasing in NSW. Yet many residents remain underprepared and do not have a written bushfire survival plan.
Ku-ring-gai Council undertook the Simtable project, which uses ambient computing technology to stimulate extreme fire weather, to increase engagement in their Climate Wise Communities (CWC) workshop program.

The Simtable 3D model proved to be a valuable visual tool in the CWC workshops. It clearly shows residents the potential risk of fire to their homes, and why fires are so unpredictable and how fast they can move on extreme weather days. Evaluation has shown a marked increase in awareness of bushfire risk and the number of people completing their bushfire survival plans.



Simtable 3D model in use at a Ku-ring-gai Council Climate Wise Communities workshop

How the project was carried out

Ku-ring-gai Council purchased this ambient computing simulation technology from the US company Simtable with funding assistance from the Increasing Resilience to Climate Change program. The Simtable is a sophisticated system designed to strategically model fire behaviour under various geophysical and meteorological conditions and educate the community about fire behaviour in their location. Council used local data for the fuel and vegetation layers so the bushfire simulations were meaningful to their own location.

During the workshops emergency service personnel workshopped scenarios with participants by providing clear and accessible information on how to respond during fire weather. Council staff provided a tour of the Climate Wise Community website which provides easy to follow steps for a resident to evaluate their personal circumstances and develop a tailored bushfire survival plan.

LOCAL GOVERNMENT NSW

REFERENCES

Walquist, C. 2019 *Australian Bushfires: the story so far in each state*, The Guardian, December 16th, 2019.

Handemer, John, Van der Merwe, Martijen and ONeill, S. 2019 *The Risk of Dying in Bushfires: a comparative analysis of fatalities and survivors*, in Progress in Disaster, Elsevier, Volume 1, May, 2019

Outcomes now and in the future

The central objective of the Simtable project was to provide a hook to motivate residents to attend the CWC workshops and access information on the CWC website. Over 600 residents attended the variously targeted events from September 2019 through to March 2020, which was a significant increase in numbers previously attending such workshops. A diverse audience included older residents, culturally and linguistically diverse groups, people with disabilities and those living in particularly risky locations.

Before and after workshop surveys were used to assess the influence of the Simtable and the feedback was very positive. Research into bushfire planning in one Western Australian study found the percentage of residents living in bushfire prone areas with bushfire plans was less than 18%, (Walquist, C. 2019) and even fewer (14%) with written plans that have been communicated to others. Handemer, Van der Merwe and O'Neill 2019 cite Eriksen et al. 2016 who reported that 78% of online survey respondents claimed to have a plan of some sort (written or otherwise), with about 14% confirming they had a written plan.

The success of the Simtable was assessed through pre and post surveys with workshop participants and an analysis of new users engaging with the CWC website. The surveys showed a significant increase in the number of people writing a plan (50% of cohort) compared with the literature average of between 14 and 18%. Prior to the introduction of the Simtable in the 2018/19 fire season there were 1,193 new users to the CWC website. After the Simtable introduction in the 2019/20 fire season showed this number jumped to 3,804 new users.

A range of other potential uses within Council are being explored including the integration of future flood modelling to assist with flash flooding. Council staff are also providing assistance and advice to other interested councils across NSW who are interested in using a Simtable.

Benefits and lessons learned

The benefit of the Simtable demonstration is residents now have a much greater understanding that they personally need to prepare for an extreme event and not just rely on agencies to undertake hazard reduction burns. Workshop attendees learned that what makes the difference is how robust their house is to ember attack and radiant heat, and how well prepared they are with an up to date written bushfire plan. The workshop program reinforced for Council the importance of using the Simtable in a setting where alarm about the risks can be managed by offering a solution to the issues raised. In the case of Ku-ring-gai Council, the solutions were outlined in their comprehensive Climate Wise Communities program.

Ku-ring-gai Council has found the technology to be highly adaptable to the needs of local government. Council has been able to demonstrate that this highly visual approach has worked in educating and preparing the community for extreme weather events and encouraging the community to share responsibility with the combat agencies for preparing for bushfires.

More information

Simtable modelling tool video
https://lgnsw.org.au/Public/Public/Policy/Case-Studies_-_Climate-Change-videos.aspx

Climate Wise Communities website resources
http://www.kmc.nsw.gov.au/Current_projects_priorities/Key_priorities/Environment_and_Sustainability_DRAFT/Bushfire_planning/Climate_wise_communities

This project was assisted by the NSW Government with support from LGNSW

NSW GOVERNMENT

Contact

Name: Dr Jennifer Scott
Position: Sustainability Program Leader
Phone: 02 9424 0862
Email: jscott@kmc.nsw.gov.au