Break O'Day Council (BODC)

Flash Flood Forecasting

The Break O'Day municipality extends 3809 square kilometers along the East Coast of Tasmania from Eddystone Point (Larapuna) and Mt William National Park in the north, to Denison River in the south and west to the eastern portion of the Fingal Valley. The main township is St Marys, which has a population of approximately 740 people.

OBJECTIVES

A centralised monitoring and alert system for flash floods in Australia does not currently exist. It falls upon individual councils to find and implement a system that meets their monitoring and alert notification needs.

St Marys is located in a catchment where high-intensity rainfall events can cause flash flooding within a very short timeframe, putting people's homes and lives at risk.

Wishing to mitigate this risk, the Break O'Day council went looking for a flood forecasting system that would provide automatic monitoring of water levels during periods of high rainfall, and provide timely alerts to relevant stakeholders to help them prepare and evacuate safely in a flash flood event.

DATA NEEDS

Existing approaches determine flood alert status based on rainfall levels within a discrete time window (e.g. 50mm of rain in a 4-hour period). Prior rain events outside of these windows aren't generally considered in terms of their contribution to flood risk. This can create inaccuracies in alert calculations, increasing the risk for stakeholders within a region.

The council required a system that would provide the most accurate flood-risk predictions possible. The system needed to be able to :

- record rain level data in real-time
- clearly visualise rain levels in relation to risk level
- account for longer periods of rainfall within predictions
- automatically alert key stakeholders using the three ascending flood advice levels used by the Australian Warning system

SOLUTION

Indicium Dynamics built a flood alert system that uses rainfall data from the Bureau of Meteorology (BoM) and the Australian Rainfall-Runoff (ARR) Intensity Frequency Duration (IFD) flood curves to analyse the last 7 days of rainfall in real-time to calculate flood probability. This data allows the INDICIUM Databus to calculate flood risk levels using rain events occurring in the past 7 days. The benefit of incorporating historical rain data into flood alert calculations is that it accounts for water accumulation in the soil, which can play a role in how well water is absorbed during a rain event.

The system is hosted in INDICIUM Cloud where council staff can view rain levels on dashboards, and manage SMS and email distribution lists to keep the public informed of potential flash flood events.

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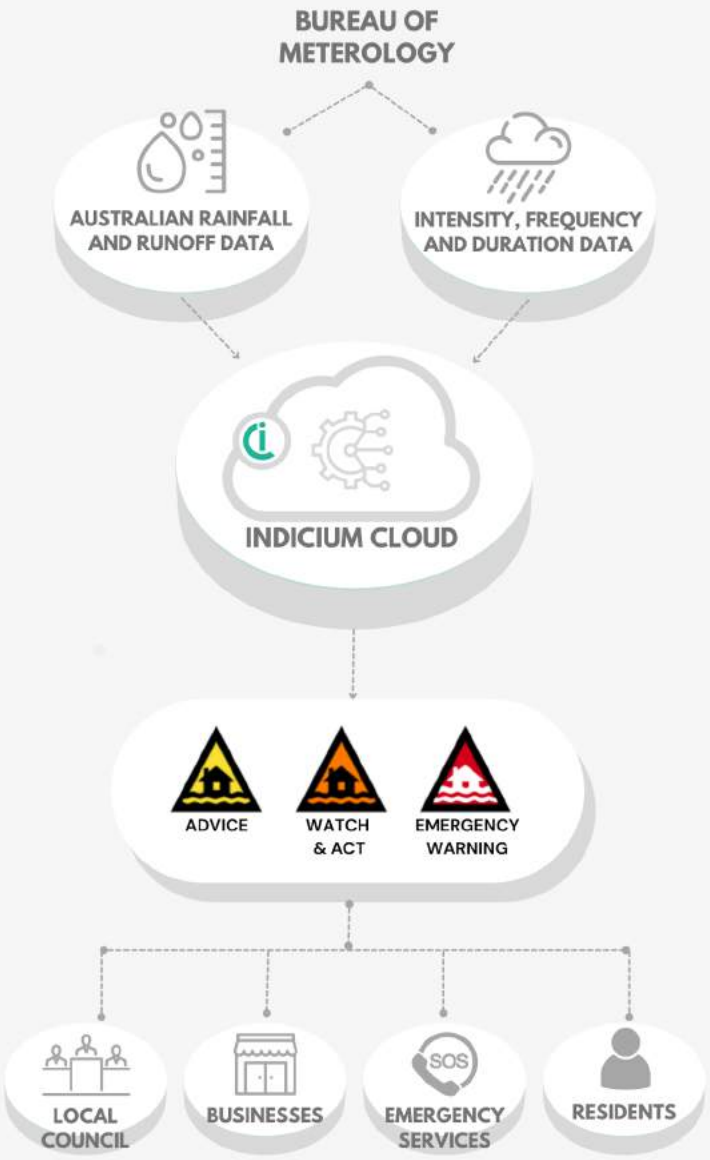

SOLUTION BENEFITS

- Real-time data is collected about rain levels
- The INDICIUM Databus integrates and displays data from any source, including the Bureau of Meteorology (BoM), and any telemetry device
- Alert levels can be pre-set, allowing for the system to automatically send alerts to key stakeholders, allowing emergency services to focus on ensuring resident safety
- Alerts can be sent via SMS or email using pre-determined messages that reflect alert status (e.g. watch & act, evacuate, threat over)
- Data is stored so historical weather patterns and rain events can be collated according to desired time-frames
- Warning levels reflect the Australian Warning System for flood emergencies, using icons recognised nationally to guide action and represent risk
- INDICIUM Dashboards are built to allow for self-service analytics, allowing users easy access to the data, without the need for coding or IT experience
- The solution has been developed to allow for easy implementation across other towns and regions

WHAT'S NEXT?

Indicium will continue working with this client to support a global roll out of our energy and water monitoring solution.

ABOUT US

Indicium Dynamics is a full-service Internet of Things (IoT) and Data Integration solutions provider. We deliver customisable data solutions that manage the collection, analysis and display of information; supporting clients to make empowered and meaningful decisions that support business growth and success.

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