

Regional Tsunami Seminars 2013

PROGRAMME

1. **Review of Tsunami Hazard in New Zealand – 2013 Update:**
Dr William Power
2. **Tsunami warning in New Zealand – Process:**
David Coetzee; Dr Ken Gledhill
3. **Sirens standard for tsunami warning:**
Brendan Morris
4. **Public Alerting Initiatives:**
David Coetzee



Ministry of Civil Defence
& Emergency Management
Te Rākau Whakamarumarū

Tsunami Warning in New Zealand

David Coetzee
Manager, Capability & Operations



Ministry of Civil Defence
& Emergency Management
Te Rākau Whakamarumarū

Pacific Tsunami Warning Centre (PTWC)



Thresholds:

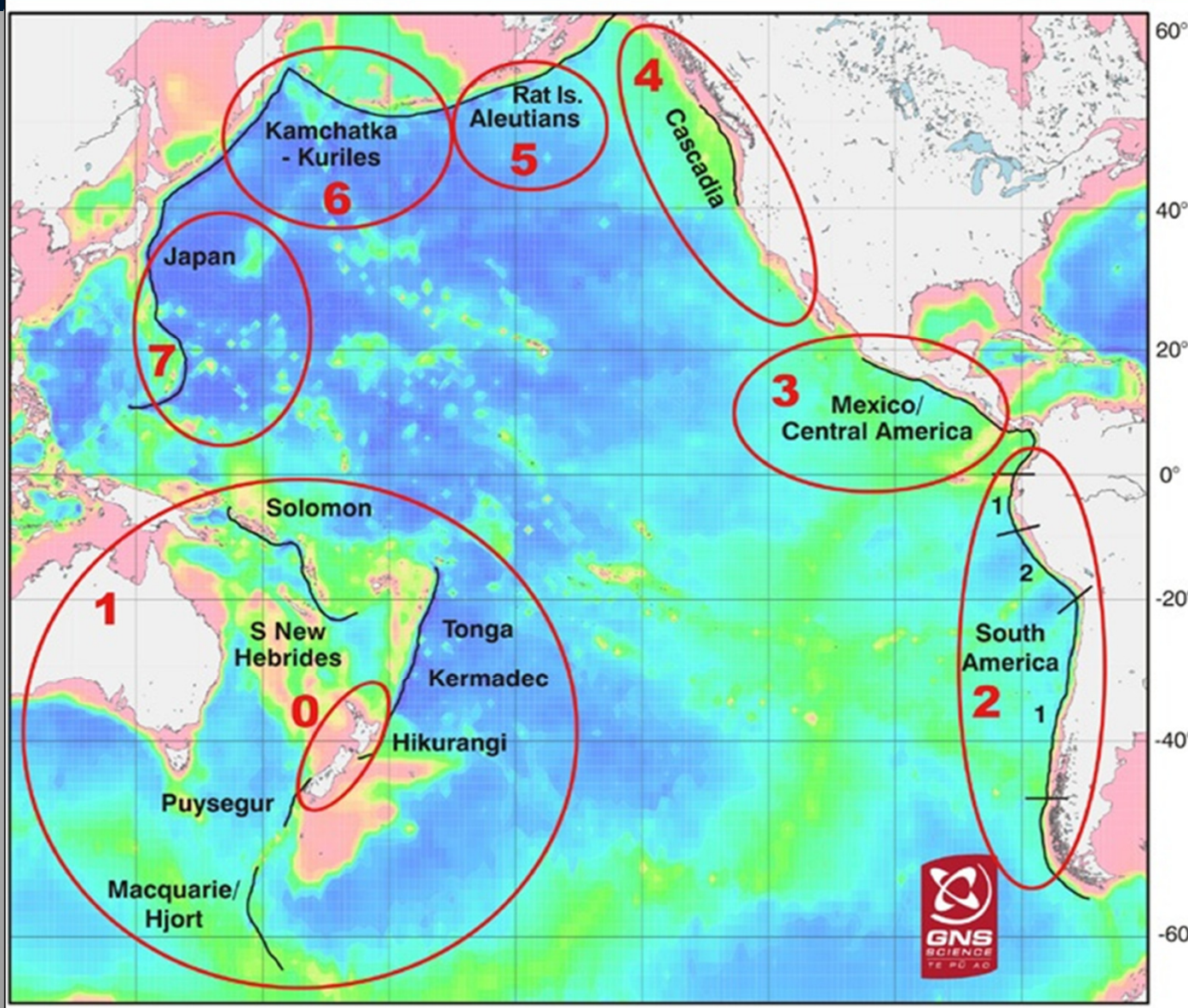


Mw 6.5 - 7.5	Tsunami Information Bulletin: Tsunami not generated; local tsunami possible
Mw 7.6 - 7.8 <100km deep	Tsunami Warning for countries within 1,000km radius of epicentre. Further countries- Information only
Mw >7.8 <100km deep	Tsunami Warning for countries within 3 hrs travel time. Countries within 3-6 hrs: Tsunami Watch
Tsunami confirmed (with destructive potential)	Tsunami Warning for all countries

National Tsunami Warning System



Tsunami Source Zones



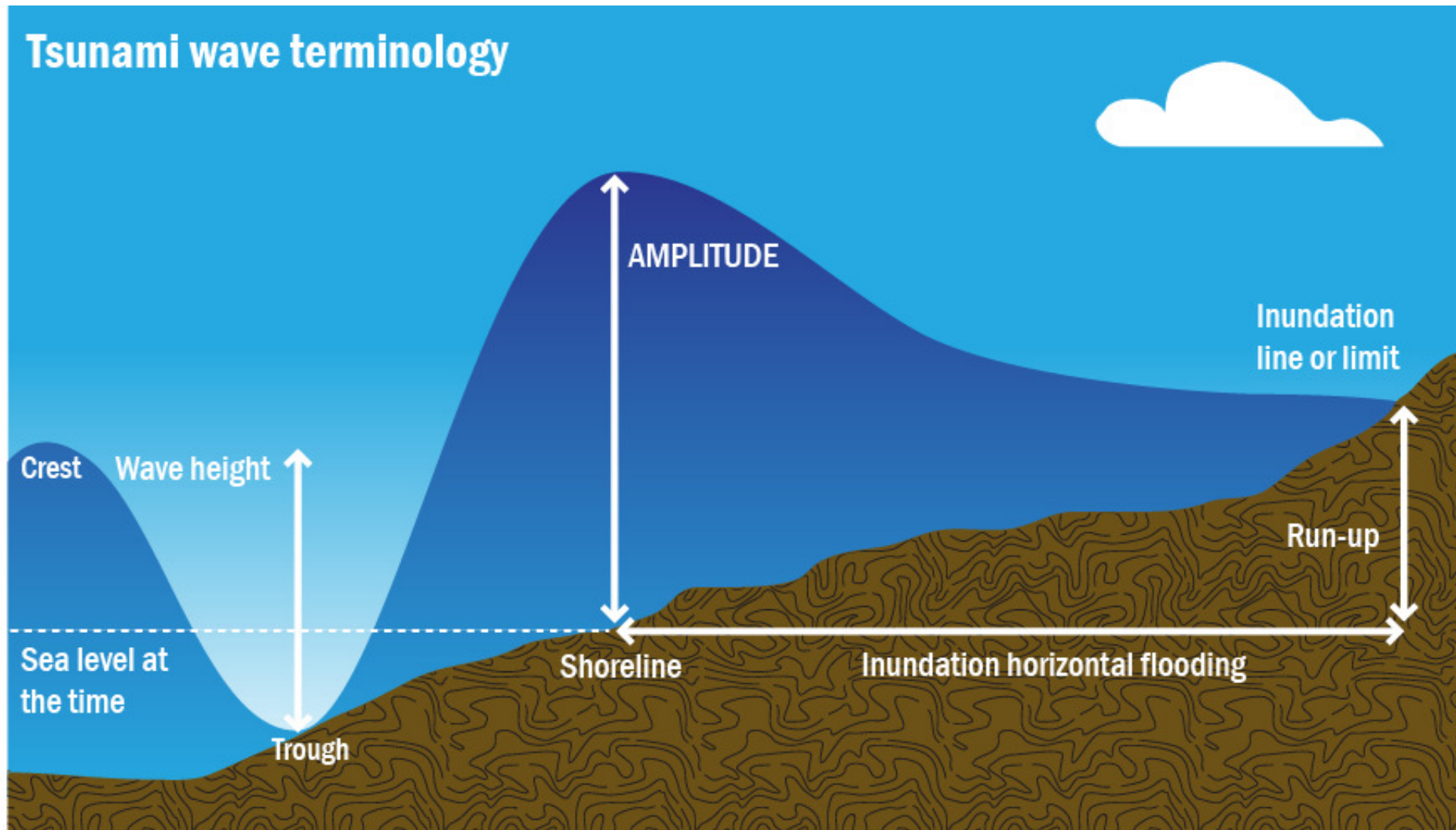
MCDEM Notification Thresholds

Region	Location	Thresholds	Template to use
0	NZ Local (within ± 500km from any NZ shore)	PTWC Warning for NZ or $M_w > 7.5$ and Depth < 50km	National Warning – Tsunami: Threat to NZ
1	South West Pacific	PTWC Warning for NZ or $M_w \geq 8$ and Depth < 50km	National Warning – Tsunami: Threat to NZ
		PTWC Watch for NZ or $M_w > 7.5 - \leq 7.9$ and Depth < 50km	National Advisory - Tsunami: Potential threat to NZ
2	South America	PTWC Watch or Warning for NZ or $M_w \geq 8.0$ and Depth < 50 km	National Advisory - Tsunami: Potential threat to NZ
3	Central America	PTWC Watch or Warning for NZ or $M_w \geq 8.0$ and Depth < 50 km	
4	Cascadia	PTWC Watch or Warning for NZ	
5	Aelutians Rat Island		
6	Kurile Islands Kamchatka		
7	Japan		
8	Other seas/oceans		

NZ Threat Levels – GeoNet assigns

Maximum expected amplitude at shore		Threat definition
	<0.2m	No Threat
	0.2-1m	Marine & Beach Threat (incl. harbours, estuaries & small boats)
	1-3m	Marine & Land Threat
	3-5m	
	5-8m	
	>8m	

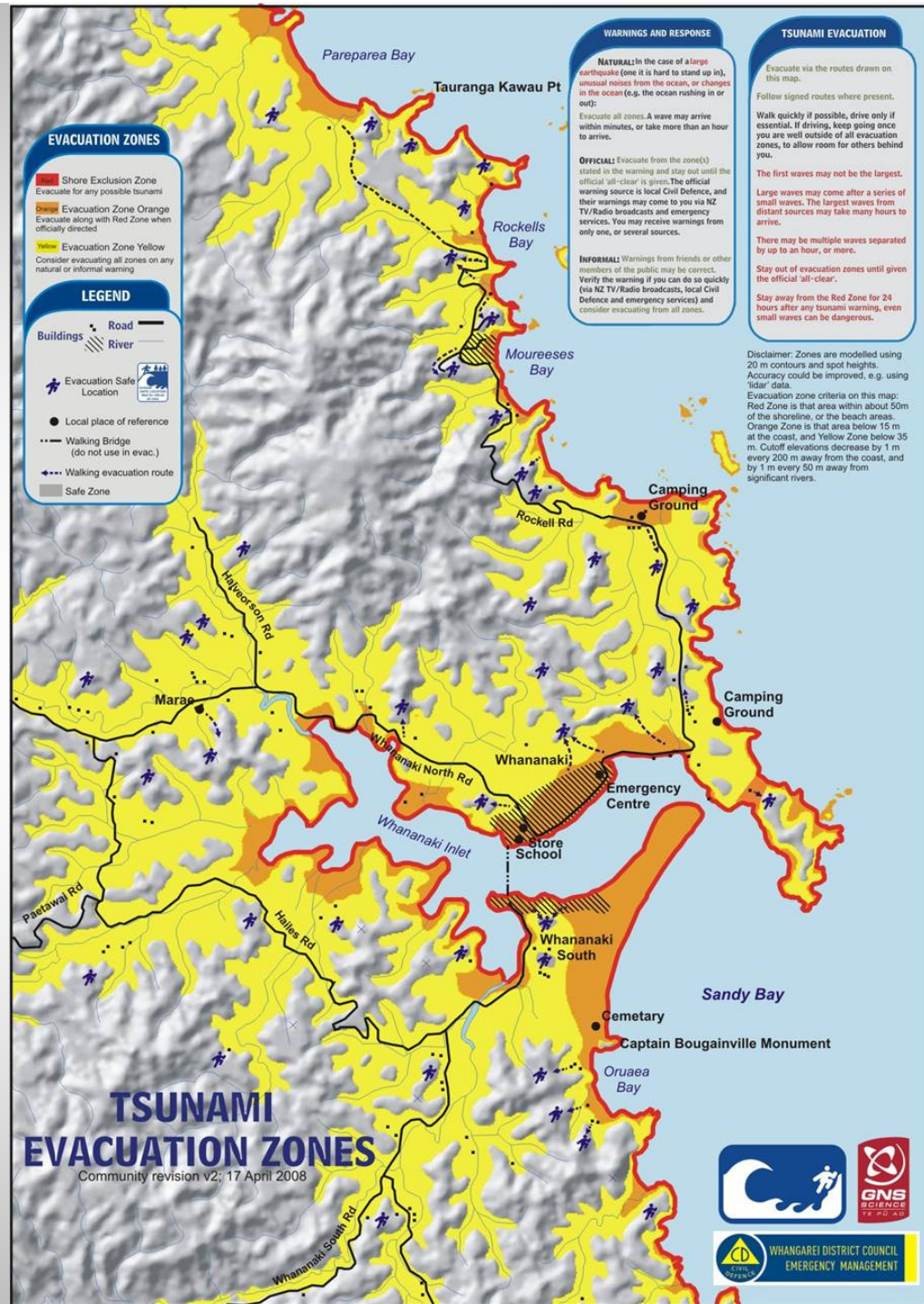
Tsunami wave terminology



NZ Threat Levels

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Local interpretation for Evacuation Zones



43 Coastal Zones



KT_mw87_1 Mw 8.7 Loc: 179.5E 37.2S



Tsunami threat levels (m)



Displacement In: 6.98
Source Code: rnk1b02-rnk1b03-rnk1b04-rnk1b05-rnk1b06-rnk1b07-rnk1b08-rnk1b09-rnk1b10-rnk1b11-rnk1b12-rnk1b13-rnk1b14-rnk1b15-rnk1b16-rnk1b17-rnk1b18-rnk1b19-rnk1b20-rnk1b21-rnk1b22-rnk1b23-rnk1b24-rnk1b25-rnk1b26-rnk1b27-rnk1b28-rnk1b29-rnk1b30-rnk1b31-rnk1b32-rnk1b33-rnk1b34-rnk1b35-rnk1b36-rnk1b37-rnk1b38-rnk1b39-rnk1b40-rnk1b41-rnk1b42-rnk1b43-rnk1b44-rnk1b45-rnk1b46-rnk1b47-rnk1b48-rnk1b49-rnk1b50-rnk1b51-rnk1b52-rnk1b53-rnk1b54-rnk1b55-rnk1b56-rnk1b57-rnk1b58-rnk1b59-rnk1b60-rnk1b61-rnk1b62-rnk1b63-rnk1b64-rnk1b65-rnk1b66-rnk1b67-rnk1b68-rnk1b69-rnk1b70-rnk1b71-rnk1b72-rnk1b73-rnk1b74-rnk1b75-rnk1b76-rnk1b77-rnk1b78-rnk1b79-rnk1b80-rnk1b81-rnk1b82-rnk1b83-rnk1b84-rnk1b85-rnk1b86-rnk1b87-rnk1b88-rnk1b89-rnk1b90-rnk1b91-rnk1b92-rnk1b93-rnk1b94-rnk1b95-rnk1b96-rnk1b97-rnk1b98-rnk1b99-rnk1c00-rnk1c01-rnk1c02-rnk1c03-rnk1c04-rnk1c05-rnk1c06-rnk1c07-rnk1c08-rnk1c09-rnk1c10-rnk1c11-rnk1c12-rnk1c13-rnk1c14-rnk1c15-rnk1c16-rnk1c17-rnk1c18-rnk1c19-rnk1c20-rnk1c21-rnk1c22-rnk1c23-rnk1c24-rnk1c25-rnk1c26-rnk1c27-rnk1c28-rnk1c29-rnk1c30-rnk1c31-rnk1c32-rnk1c33-rnk1c34-rnk1c35-rnk1c36-rnk1c37-rnk1c38-rnk1c39-rnk1c40-rnk1c41-rnk1c42-rnk1c43-rnk1c44-rnk1c45-rnk1c46-rnk1c47-rnk1c48-rnk1c49-rnk1c50-rnk1c51-rnk1c52-rnk1c53-rnk1c54-rnk1c55-rnk1c56-rnk1c57-rnk1c58-rnk1c59-rnk1c60-rnk1c61-rnk1c62-rnk1c63-rnk1c64-rnk1c65-rnk1c66-rnk1c67-rnk1c68-rnk1c69-rnk1c70-rnk1c71-rnk1c72-rnk1c73-rnk1c74-rnk1c75-rnk1c76-rnk1c77-rnk1c78-rnk1c79-rnk1c80-rnk1c81-rnk1c82-rnk1c83-rnk1c84-rnk1c85-rnk1c86-rnk1c87-rnk1c88-rnk1c89-rnk1c90-rnk1c91-rnk1c92-rnk1c93-rnk1c94-rnk1c95-rnk1c96-rnk1c97-rnk1c98-rnk1c99-rnk2d00-rnk2d01-rnk2d02-rnk2d03-rnk2d04-rnk2d05-rnk2d06-rnk2d07-rnk2d08-rnk2d09-rnk2d10-rnk2d11-rnk2d12-rnk2d13-rnk2d14-rnk2d15-rnk2d16-rnk2d17-rnk2d18-rnk2d19-rnk2d20-rnk2d21-rnk2d22-rnk2d23-rnk2d24-rnk2d25-rnk2d26-rnk2d27-rnk2d28-rnk2d29-rnk2d30-rnk2d31-rnk2d32-rnk2d33-rnk2d34-rnk2d35-rnk2d36-rnk2d37-rnk2d38-rnk2d39-rnk2d40-rnk2d41-rnk2d42-rnk2d43-rnk2d44-rnk2d45-rnk2d46-rnk2d47-rnk2d48-rnk2d49-rnk2d50-rnk2d51-rnk2d52-rnk2d53-rnk2d54-rnk2d55-rnk2d56-rnk2d57-rnk2d58-rnk2d59-rnk2d60-rnk2d61-rnk2d62-rnk2d63-rnk2d64-rnk2d65-rnk2d66-rnk2d67-rnk2d68-rnk2d69-rnk2d70-rnk2d71-rnk2d72-rnk2d73-rnk2d74-rnk2d75-rnk2d76-rnk2d77-rnk2d78-rnk2d79-rnk2d80-rnk2d81-rnk2d82-rnk2d83-rnk2d84-rnk2d85-rnk2d86-rnk2d87-rnk2d88-rnk2d89-rnk2d90-rnk2d91-rnk2d92-rnk2d93-rnk2d94-rnk2d95-rnk2d96-rnk2d97-rnk2d98-rnk2d99

Presentation in Warnings (from 2'd)

NOTE:

1. The stated threat levels may apply to any one of the series of waves generated by the event and not necessarily to the first wave. The first wave is not always the largest or highest and waves are likely to continue for many hours.
2. The threat levels suggest the largest wave at any coastal point inside the zone. Wave heights will vary within a zone.
3. The amplitudes do not include the tidal state (sea level) at the time the wave reaches the shore.
4. The estimate is for the maximum expected wave amplitude at shore. Run-up can be up to twice as high on steep slopes onshore near the coast, i.e. a wave measuring 5m at shore can run up as high as 10m on-land near the shore.
5. The expected wave amplitudes (crest to sea level) at the shore are likely to be different to measurements given in PTWC bulletins. PTWC measurements are taken at sea level gauges in the open ocean or at coastal points off-shore from New Zealand. MCDEM information represents the official threat estimates.

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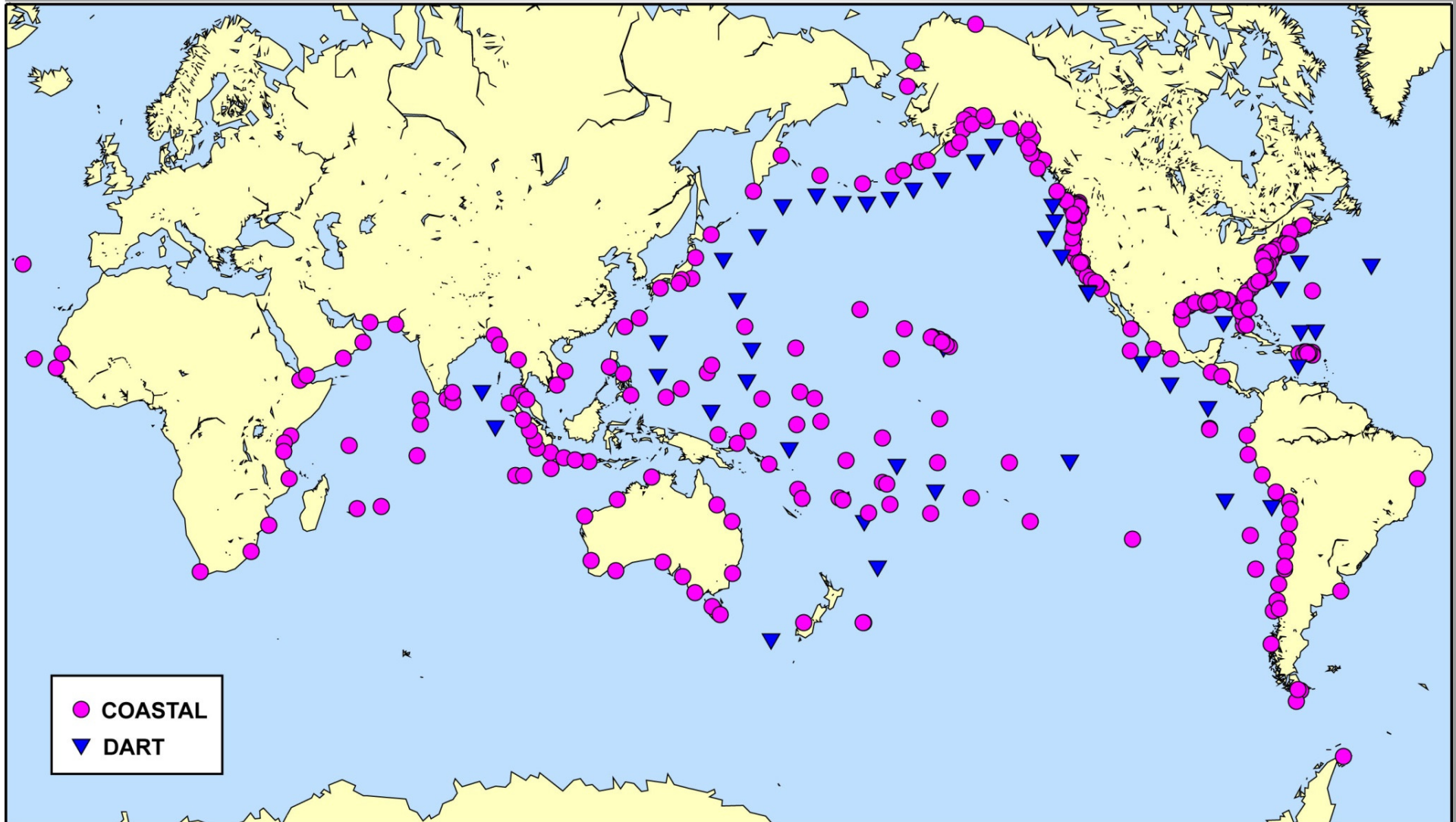
NCMC

- **Activates for Potential Threat and Warning**
- **Requests GeoNet representation**
 - Link with Tsunami Experts Panel
 - Direct advice
- **Continues hourly updates**
- **Calls Teleconferences with Group Controllers**
 - GeoNet interpretation
 - Clarifications
 - Group actions
- **Conducts media conferences**

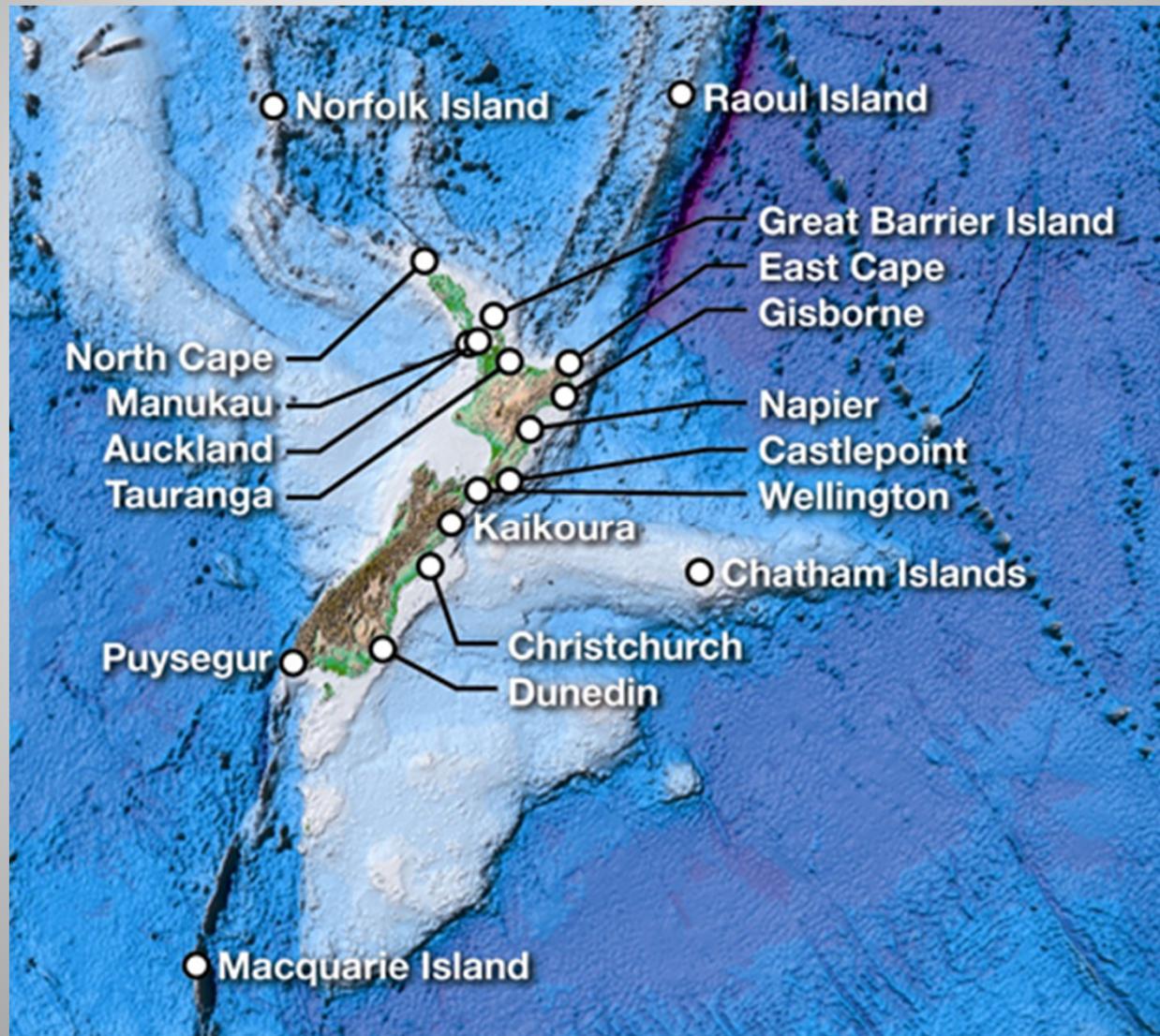
Media

- Media get same messages as Groups/TAs
- MCDEM always activates Media MOU for Potential Threat and Warning:
 - Regular broadcast via radio & TV
 - No local detail
- Continues hourly updates until cancellation
- Always confusion with PTWC messages- should change next year

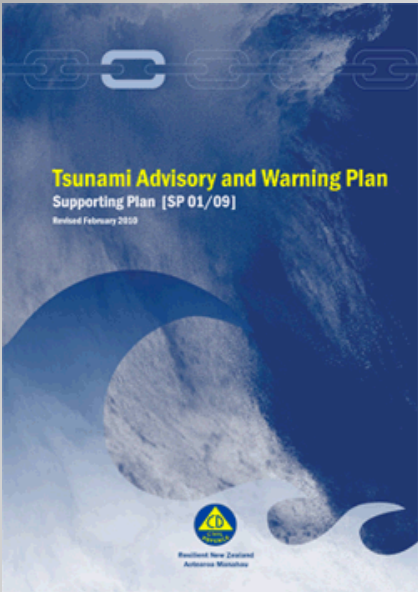
Global Sea Level Network



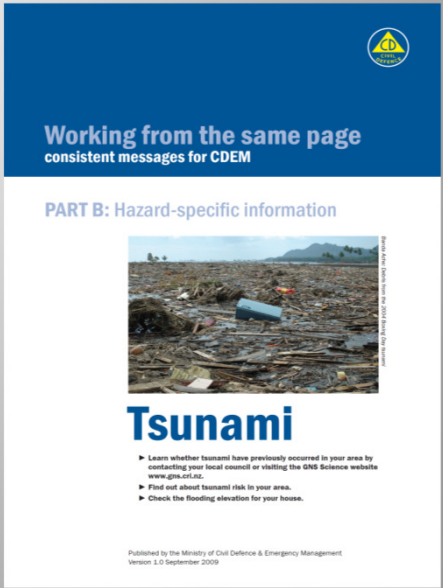
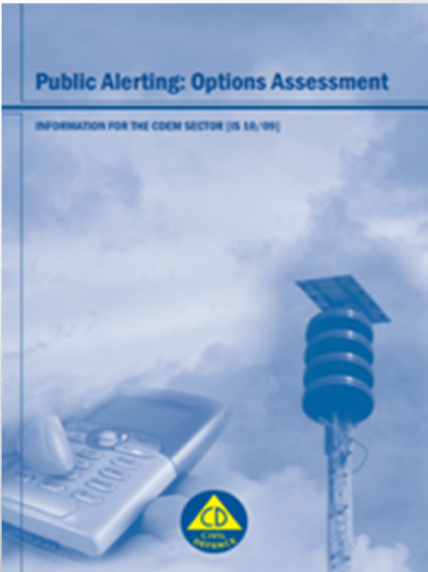
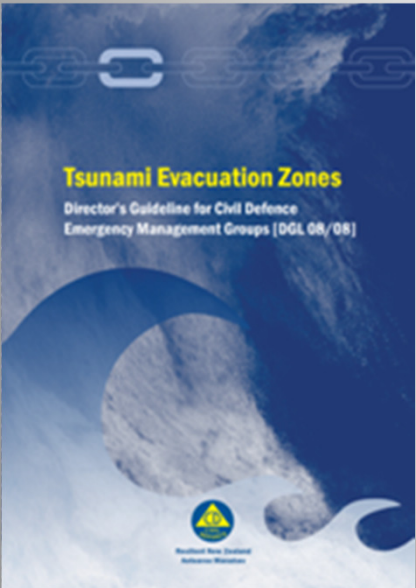
NZ Tsunami Monitoring Network



Plans, Standards & Guidelines



www.civildefence.govt.nz



Public Alerting – current initiatives

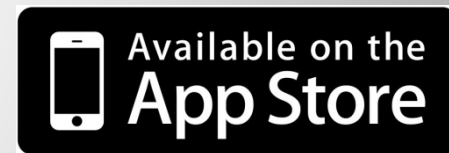
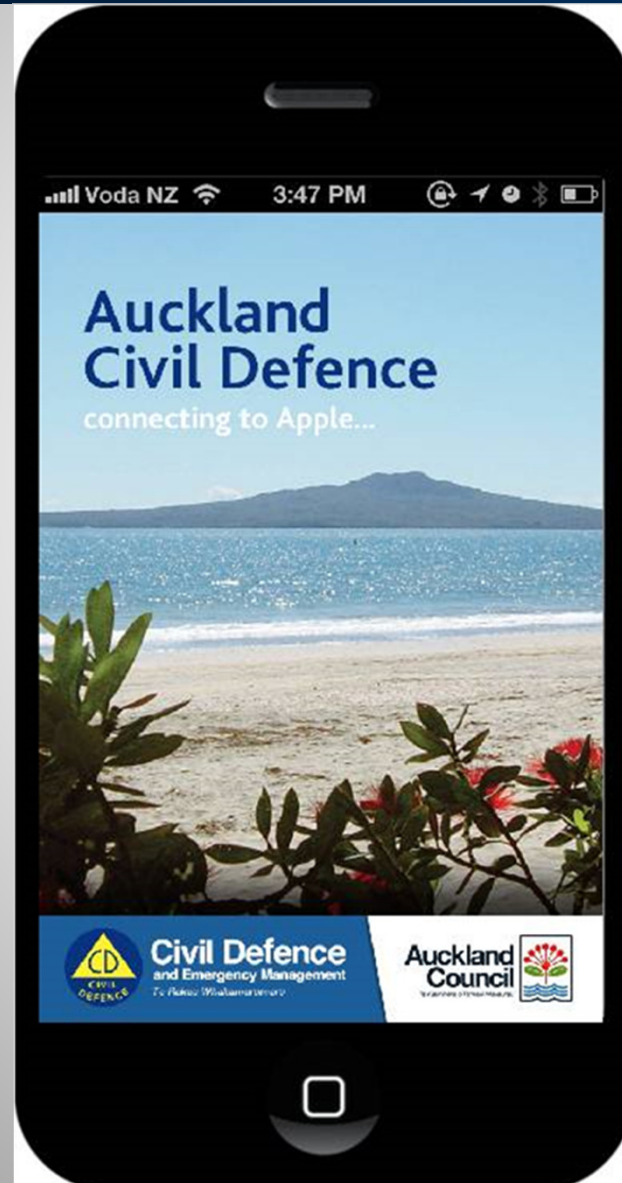
- **Cell Broadcasting**
- **Akl Smartphone App**
 - Auckland project
- **Akl Alerting Portal**
- **Tsunami**

Cell Broadcasting



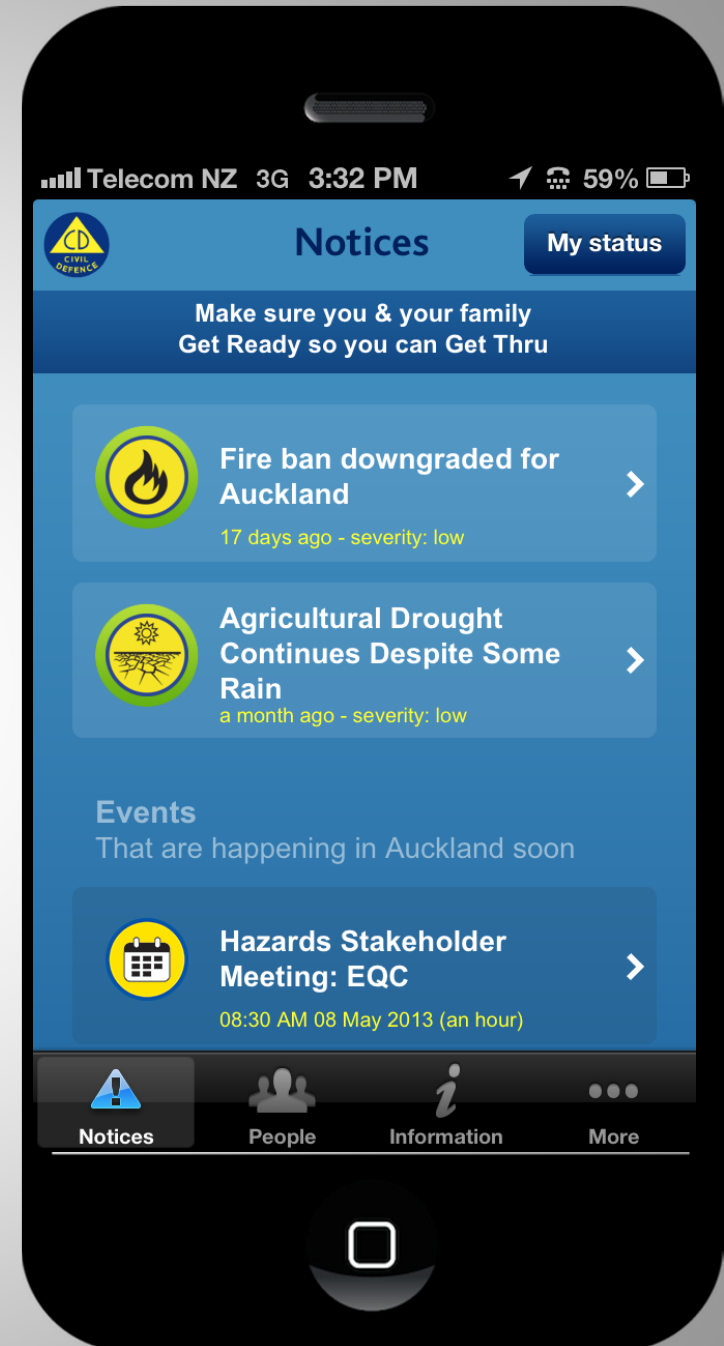
- **Targets geo-referenced cell towers – all telco networks**
- **Different to ‘Location Based SMS’ (Australia)**
- **Business case by mid 2014 - subject to \$250k
Capital: circa \$8m, Operating: circa 1.5m p.a.**
- **All of Government system**
- **Used in USA, Netherlands, Israel, Chile**
- **Long roll-out period (2-3 years)**

Akl CC Project: Smartphone App



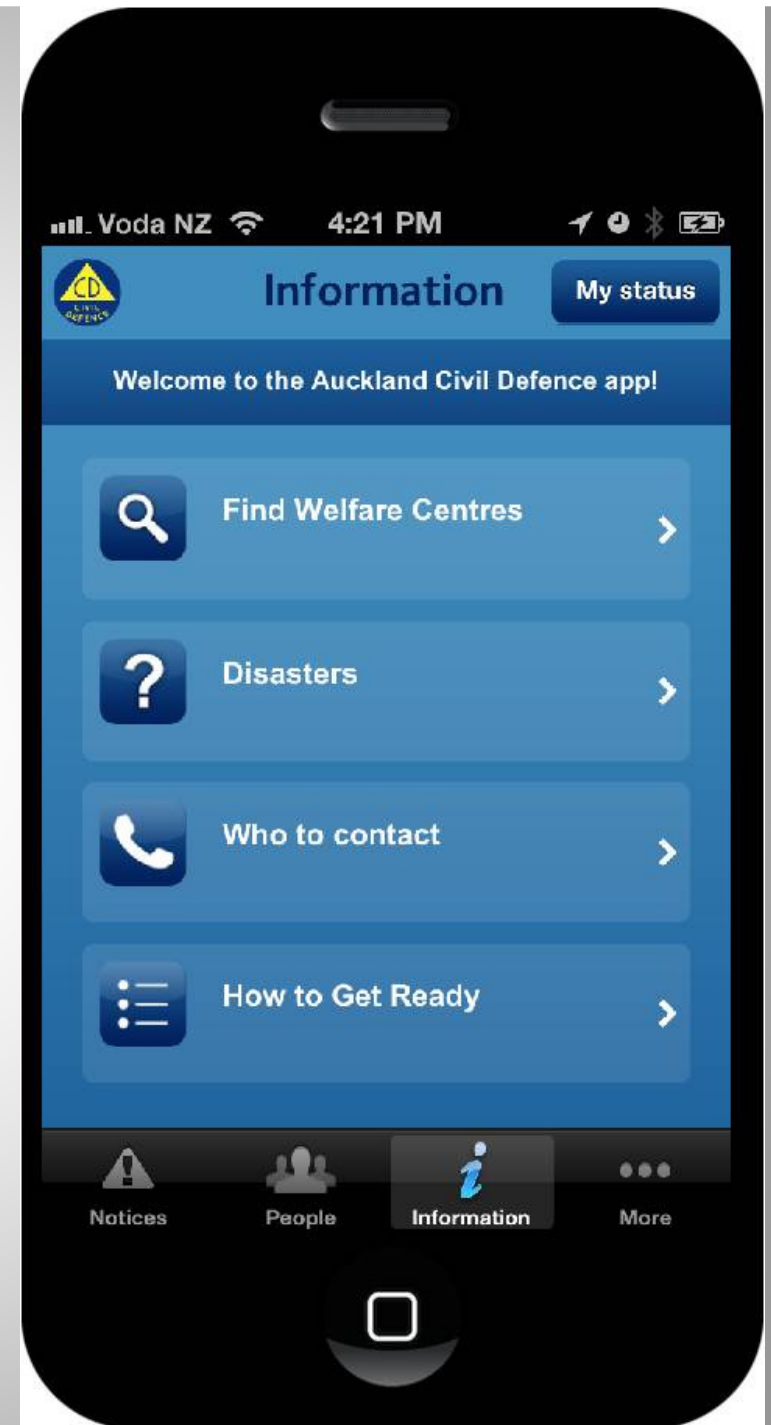
Notices

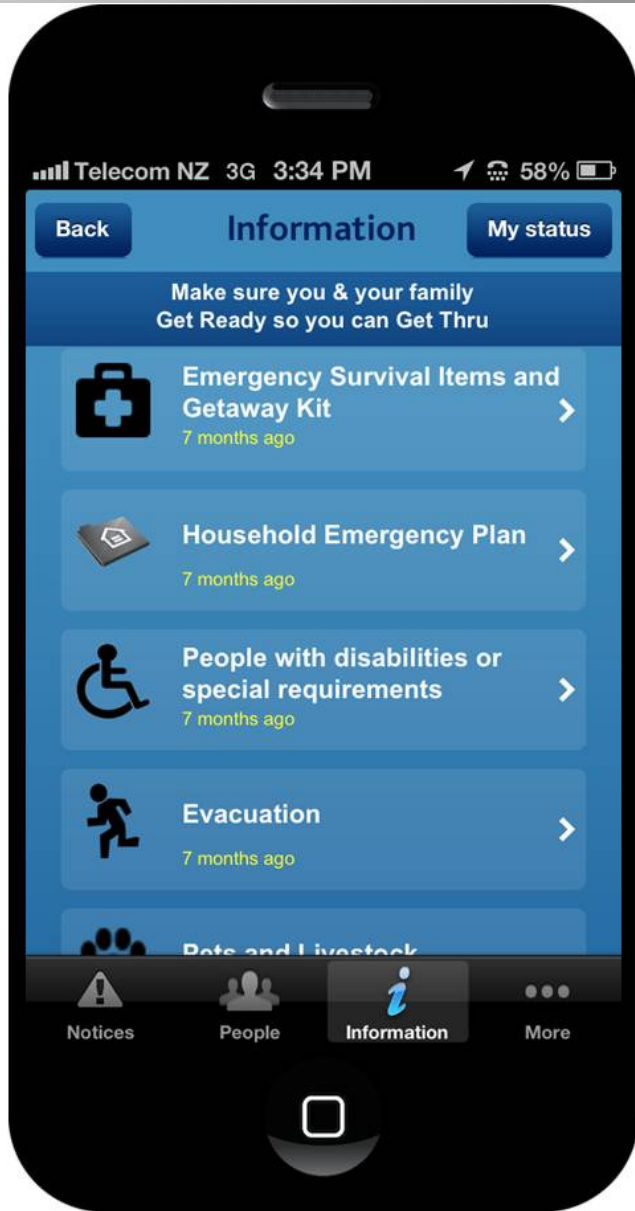
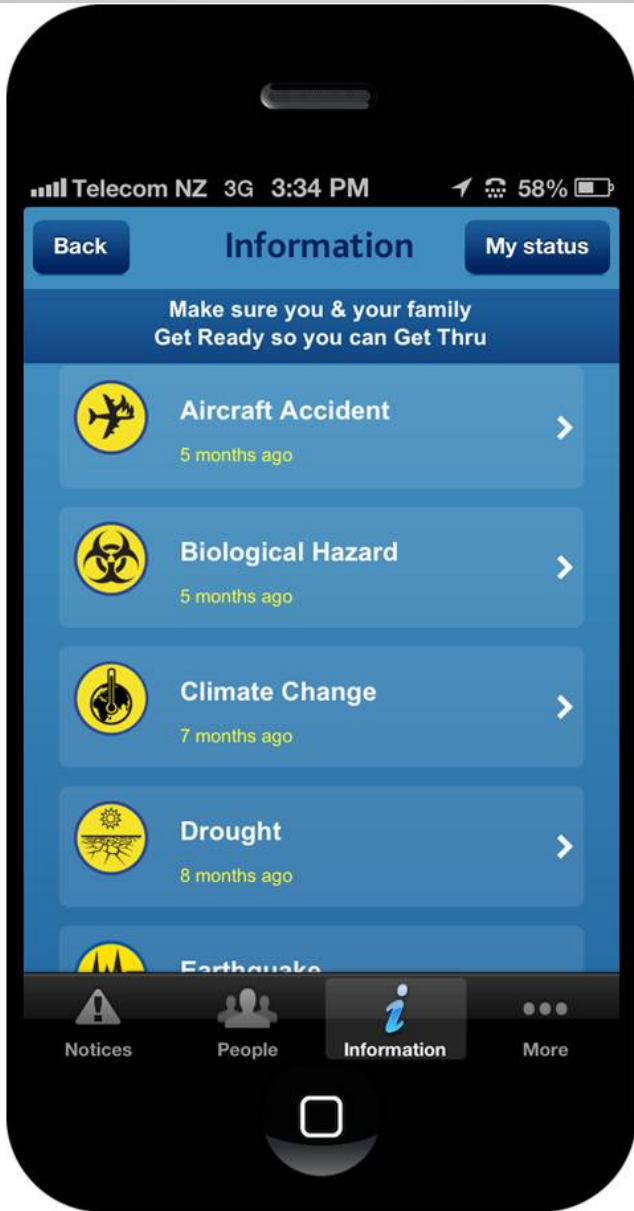
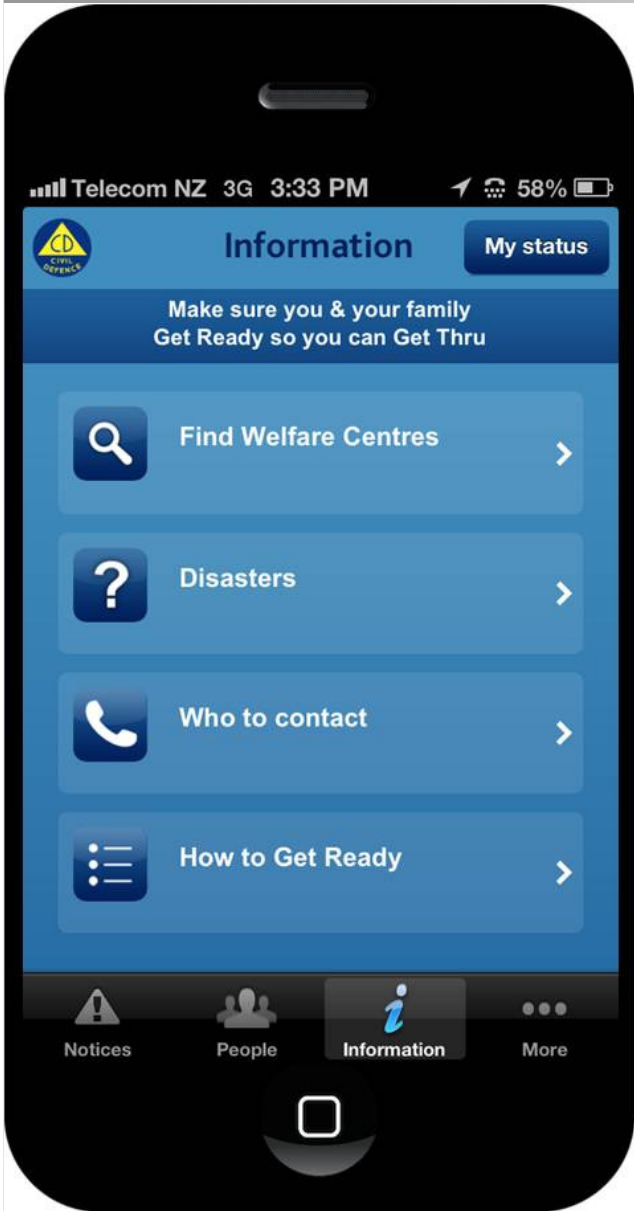
- Alerts from Civil Defence
- Colours show priority –
 - Green** ‘for your information’
 - Orange** ‘pay attention’
 - Red** ‘take action now’
- Community events that are coming up



Information

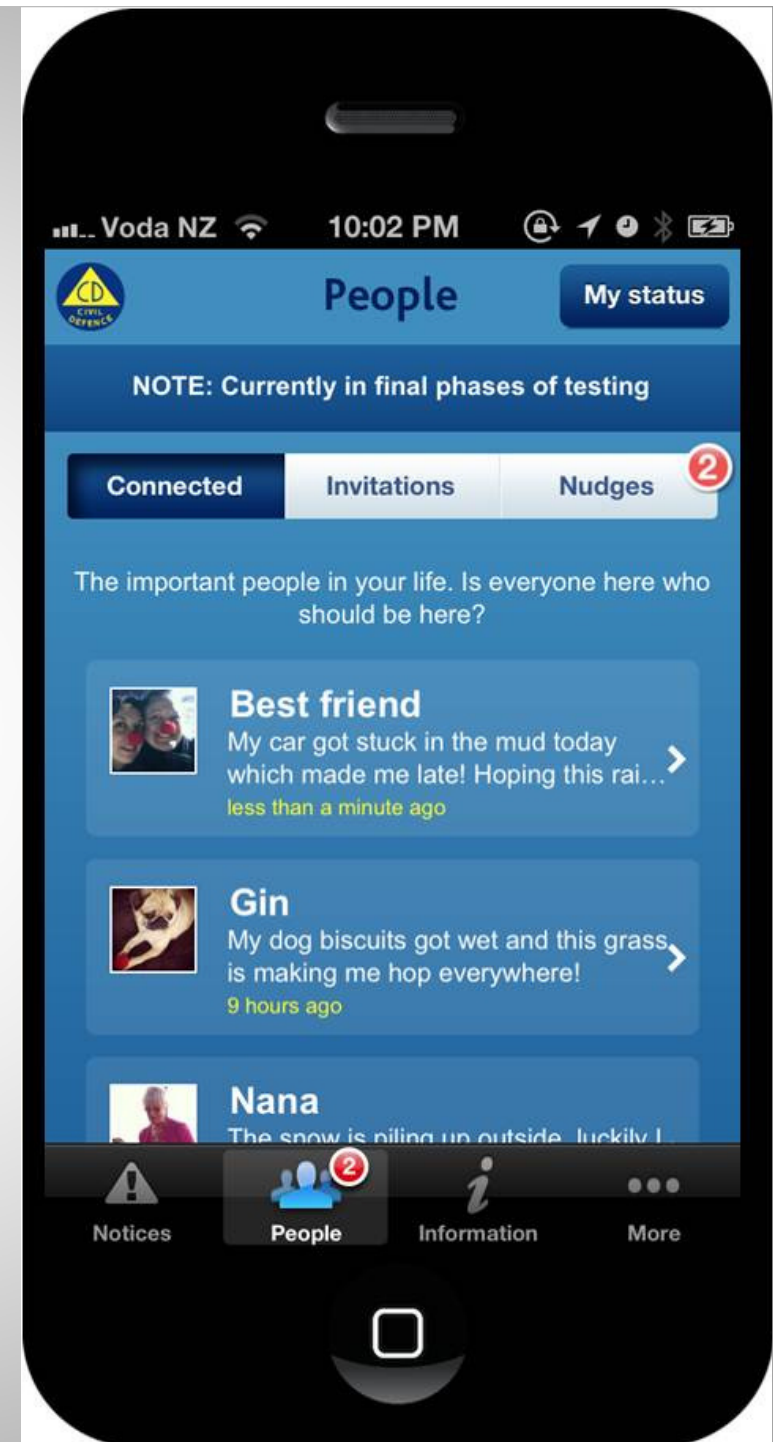
- Preparedness information
- Information pre-loaded: available offline in case the networks go down





'My People'

- Invite people to connect using email, text and Facebook
- Connect with loved ones in an emergency
- See their status in an emergency
- Share alerts, information



Akl CC Project: Public Alerting Platform

Designed to reach people where they are at, and by as many means as possible - simultaneously



Native apps



Twitter



Facebook



Email



SMS



Cell broadcast



Websites



RSS



ReadyNet



Google +

Platform intends to provide:

- **Single system to push/trigger alerts**
- **Secure Web-based access**
- **Storing of templates (select)**
- **Storing of distribution data/lists (select)**
- **Ability to select alerting modes**
- **Ability to integrate with other systems**

Where to from here?

- **Auckland is**
 - Upgrading the Public Alerting Platform (operational and functional)
 - Enhancing the iOS app
- **Resilience Fund**
 - Develop native apps for other operating systems e.g. Android, Windows.
 - Prepare both for CDEM Group / National availability

Tsunado

- Connects to wall power point (battery back-up)
- Alarm to alert
- FM Radio receiver & speaker-
CD info read by radio station
Potentially TV (Sky)
- Requires broadcasters to commit
- \$75 per device; annual cost for Group. Akl signed up





Ministry of Civil Defence
& Emergency Management

Te Rākau Whakamarumarū

David Coetzee

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