Anna Jellie

From: Anna Jellie
Sent: Tuesday, 30 April 2024 13:53
To: Anna Jellie
Subject: FW: GNS staff profile contact form: 14/08/2023 - Tsunami + hazards

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From: Di Rossiter <di@dextera.co.nz>
Sent: Monday, 4 September 2023 10:30
To: Justin Faulke <j.faulke@gns.cri.nz>
Cc: Tom Logan <Tom.Logan@canterbury.ac.nz>; Anna Scheirlinck <anna.scheirlinck@urbanintelligence.co.nz>
Subject: FW: GNS staff profile contact form: 14/08/2023 - Tsunami + hazards

Hi there Justin,

Thanks for your messages.

Tom and Anna are the technical data people and would be much better placed to have this conversation with you – they're cc'd into this email.

Ngā mihi

Di Rossiter
021 426 233

From: Justin Faulke <j.faulke@gns.cri.nz>
Sent: Monday, September 4, 2023 10:10 AM
To: Di Rossiter <di@dextera.co.nz>
Subject: FW: GNS staff profile contact form: 14/08/2023 - Tsunami + hazards

Hi Di,
I have just left a message with you on your mobile, but firstly my name is Justin Faulke, I work closely with the Tsunami team here at GNS.

I had been away on leave then came back with Covid so apologies with my slow reply to you.

It would be great to find out more about how we can help you with information, even further than just the tsunami inundation modelling (ie, fault mapping, earthquake shaking, landslide susceptibility, deformation etc).

PS we understand that LiDAR data for the West Coast might be available soon and can probably find out for you. We believe it was flown a few months back.

Thanks,

Justin Faulke

Business Development Manager

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From: David Burbidge <d.burbidge@gns.cri.nz>
Sent: Wednesday, 16 August 2023 11:52
To: Di Rossiter <di@dextera.co.nz>; William Power <W.Power@gns.cri.nz>
Cc: Anna Scheirlinck <anna.scheirlinck@urbanintelligence.co.nz>; Tom Logan <Tom.Logan@canterbury.ac.nz>; Sharon Hornblow <sharon.hornblow@wcrc.govt.nz>; Aditya Gusman <a.gusman@gns.cri.nz>; Chris Worts <c.worts@gns.cri.nz>; Justin Faulke <j.faulke@gns.cri.nz>
Subject: RE: GNS staff profile contact form: 14/08/2023

Hi Di,

The cost of what you are suggesting would depend on the number of factors, so I can't give you an exact estimate without finding a bit more about what you already have and what exactly you would like. However, I can give you a rough guide of what we need to know and how much the resulting modelling may cost. Note that this is not an exact quote, we would need to scope the project properly for that. Everything below assumes you are after some hydrodynamic models of the tsunami to provide as input into your risk tool. The models would similar to those we provided to WCRC for their evacuation maps.

The first thing we would need to know is how much Lidar do you have for the Buller coast. We need something of similar quality to what we used for Westport for the WCRC evacuation models. If Lidar for the rest of the coast isn't available then we would only be able to hydrodynamically model the Westport area using what we already have. While that is less comprehensive it would also be quite a bit cheaper since we already have the models set up from the previous study. It would also save on computational costs.

Once we have worked out the area that needs to be modelled, the cost then multiplies by the number of scenarios you would like us simulate for you. For 10 sets of SLR values at 4 different return periods with about 5 scenarios at each SLR value and return period combination we would be modelling something in the vicinity of 200 tsunami scenarios. That is a lot of scenarios! That is more most other parts of NZ have for a similar area of coast. Each scenario could take several days to week on a supercomputer to run depending on the length of coast. That would take about 6-12 months to do and would probably cost several $100k just for Westport. For the whole coast, assuming Lidar was available, it wouldn't surprise me if this would end up well over $500k, maybe a lot more. We would have to do a formal budget once we had a better idea the Lidar you have, the cost of integrating the Lidar with existing Digital Elevation Models, and the number of scenarios need for the whole area to do a proper quote. However, that should give a rough idea of the sort of numbers we would be talking about.

The main thing I'm trying to get across is that for us to do a similar amount of hydrodynamic modelling as we did for Westport but to extend it to the whole Buller coast would not be cheap or quick. The other

problem is our capacity. We wouldn't be able to even start a project of anything like this size until next financial year at the earliest.

I going to hazard a guess that this is more money and time than you were probably expecting. In the short term, I suggest getting the most of the models we have already done for Westport for their tsunami evacuation maps. Please contact WCRC (Sharon?) for them. They don't cover the whole coast or the different SLR values, but it would at least give you something to start with. In the medium to long term, if WCRC or another group in the region would like more modelling for Buller, then we can certainly talk more about it. I would suggest a tighter scope to start with, say just a 2m SLR value and one return period for the whole coast depending on what the application you most wanted to use this for. That would be cheaper and quicker, and more models could be added later as we have capacity and budget becomes available. Projects of this size are often phased in some way. Probably a good time to do start that sort of conversation would be ~9 months from now. That gives us some time to sort out a contract, schedule the work and probably the time needed for someone to find the money!

I hope that helps a bit an idea of costs/timeframe for tsunami inundation modelling. Basically it isn't cheap or quick. Sorry if that was not the news you were hoping for.

David Burbidge I Team Leader
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From: Di Rossiter <di@dextera.co.nz>
Sent: Tuesday, 15 August 2023 13:12
To: William Power <W.Power@gns.cri.nz>
Cc: David Burbidge <d.burbidge@gns.cri.nz>; Anna Scheirlinck <anna.scheirlinck@urbanintelligence.co.nz>; Tom Logan <Tom.Logan@canterbury.ac.nz>; Sharon Hornblow <sharon.hornblow@wcrc.govt.nz>
Subject: RE: GNS staff profile contact form: 14/08/2023

Kia ora William,

Thank you for getting back to me so promptly.

I am part of team assessing multiple natural hazards across the Buller district on the West Coast of the SI, including river flood, pluvial flood, SLR, groundwater intrusion, landslide, erosion etc, layering in EQ, liquefaction, and tsunami.

Tom Logan (copied into this email) and his team are developing a geospatial risk tool that maps the district's communities, assets, infrastructure, values etc, against the multiple hazards under various climate scenarios, and the tsunami data we requested from GNS would feed into this tool. You are right, we are interested in onshore data.

We are in close contact with Sharon Hornblow at WCRC (also copied into this email).

If you require specific technical information, Tom or Anna (also copied in) will be able to help you – Tom or Anna, please feel free to jump in with additional context if needed.

However, in the meantime, would you please provide an estimate for completing the additional tsunami inundation modelling you refer to below?

Finally, I appreciate the heads regarding your availability. Although we would like to secure the data asap, we can add it into the model as it comes to hand.

Ngā mihi

Di Rossiter
021 426 233

From: William Power <W.Power@gns.cri.nz>
Sent: Tuesday, August 15, 2023 11:23 AM
To: Di Rossiter <di@dextera.co.nz>
Cc: David Burbidge <d.burbidge@gns.cri.nz>
Subject: RE: GNS staff profile contact form: 14/08/2023

Hello Di,

Thank-you for getting in contact with us. I am one of the tsunami researchers at GNS.

The information that we have readily available from the 2021 National Tsunami Hazard Model is available from here:

https://www.gns.cri.nz/data-and-resources/2021-national-tsunami-hazard-model/

It sounds like you already have the GIS shapefile data. There is additional hazard-curve and de-aggregation data that covers Buller/Westcoast in the pdf under the '2021 NTHM All-Coast Tsunami Hazard Data' link. If you would like deaggregation data at other return periods or confidence levels we may be able to extract that relatively easily.

The data at the link above all relates to tsunami heights at the coastline. However, your message mentioned flow-depths and flow-velocities at various return periods and sea-level-rise increments, which suggests that you are interested in onshore inundation? To provide this type of information we would need to do additional tsunami inundation modelling, which we would have to do as a piece of chargeable consultancy work (and we are at full capacity for this type of work for the next several months, so we could not do this right away).

We might be able to help you more if you could provide us with a clearer picture of your intended use for the data? Although it predates the 2021 NTHM, depending on your purpose there may be useful information in the previous work that we did for WCRC to help develop their tsunami evacuation zones. Are you in contact with WCRC about this and have you access to those reports?

Best Regards,
William Power

From: no-reply@gns.cri.nz <no-reply@gns.cri.nz>
Sent: Monday, 14 August 2023 16:03
To: David Burbidge <d.burbidge@gns.cri.nz>
Subject: GNS staff profile contact form: 14/08/2023

GNS staff profile page contact form submission

Submitted on 14/08/2023

Message details

Name: Di Rossiter

Email: di@dextera.co.nz

Subject: Buller District Council request for data

Message: Kia ora,

Following the release of the 2021 National Tsunami Hazard Model and the region-specific shapefiles for maximum wave height, we would like to request/commission GNS to provide Westcoast region specific Tsunami data disaggregated from the 2021 model.

The ideal output from this would be depth and velocity values for the entire coast, paired with as many return intervals (100, 500, 1000, 2500-years) and sea level rise increments (0 to 2 m in 10 cm increments) as possible.

Thank you,
Di Rossiter

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