Google Earth Southwest UK Storm Response Exploration Project

The 2013/14 winter period was the most energetic period since at least 1955, and included 10 storm events during which the peak significant wave height exceeded 8 m (Masselink et al., 2016). These events had significant effects on the southwest of England, which suffered considerable impacts along the coast. With the Google Earth tool you are about to use, you will be able to explore the wave and wind conditions during these events, as well as the changes they caused on the beaches along the southwest coast.
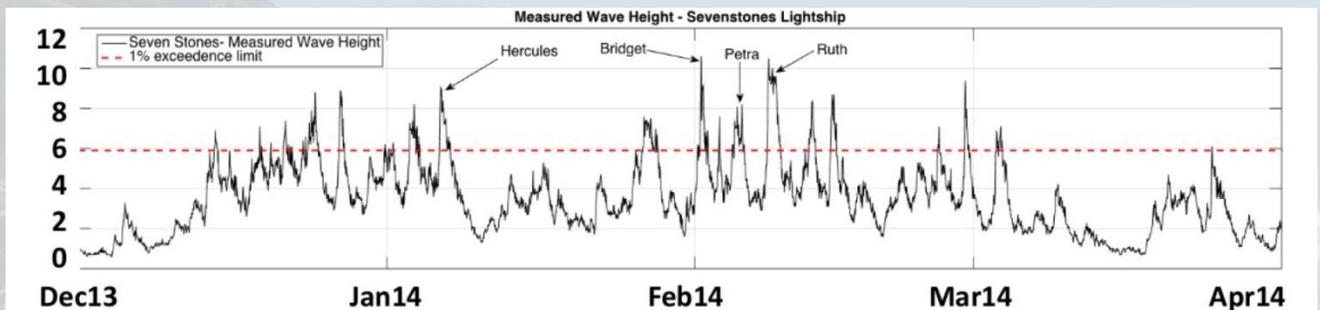

Figure 1, Significant wave height measured at Sevenstones lightship over the winter 2013/14. (Source: "The winter storms of 2013/14: Oceanography and coastal impacts" presentation by Gerd Masselink at Coastal Futures 2015. http://coastal-futures.net/wpcontent/uploads/2016/02/Masselink.pdf).

How to use the Google Earth Southwest UK Storm Response Exploration Project

- Download the KMZ file from; https://dl.dropboxusercontent.com/u/15585750/SWStormsGR.zip and unzip the contents before saving it to a known location.
- Launch Google Earth (GE)

In GE select File -> Open and than locate the KMZ file at the location where you pre previously stored it. WAIT patiently, it is a big file and requires some time to be installed. Once loaded you will see a series of wavy markers at every beach presented in the toolbox and the project title "South West UK Storm Response" under Temporary Places on the Places menu to the left of your GE screen.

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All other features of the toolbox are turned off by default and require you to "turn them on". This is done by expanding "South West UK Storm Response" by clicking on the plus (+) sign to the left of the title and then clicking on the check boxes next to the particular feature you are interested in ("Storm Winds", "Met Office Wave Hindcasts" or "Beach Erosion/Deposition").
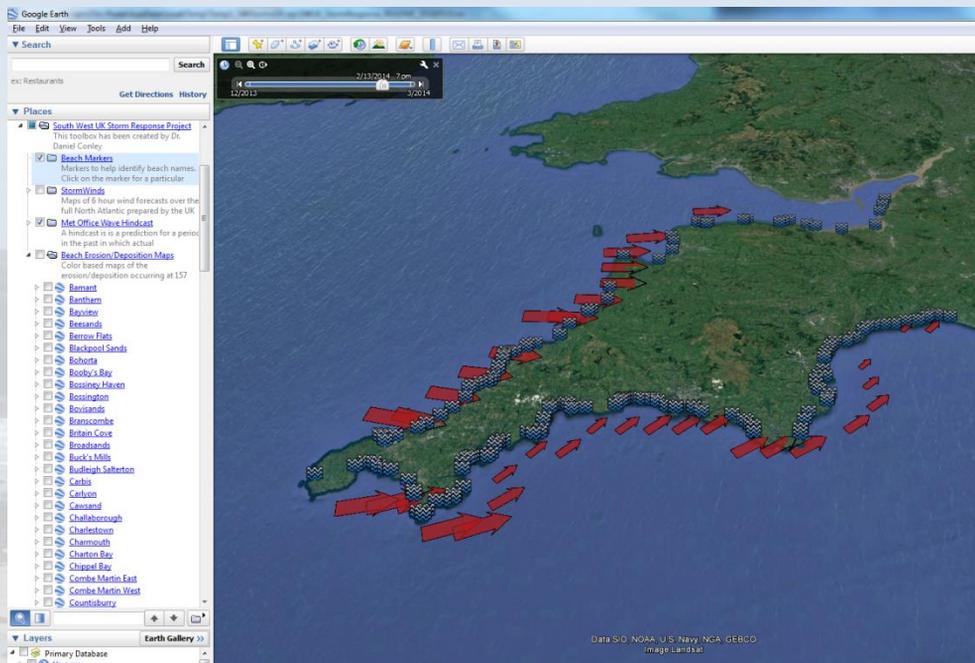

Figure 2, Screen-grab showing GE with the South West UK Storm Response Project. Note that Beach Markers (wavey symbol) and the Met Office Wave Hindcast (red arrows) are "turned on".

To view the Wave Hindcasts usefully, you will want to adjust your timeline (black tool bar towards the top left of your GE map) so that you only see one time period at a time. To do this, click on the timeline and grab the white "telephone" at the left hand edge of the bar. Slide this to the right until you have jammed it up against the arrow slider to the right. You should now only see one arrow at each location. If you see more, repeat this step until you only see one (once you have tried this step, you may be able to achieve the same effect by pulling the arrow slider back into the "telephone").

Once you have achieved this, you are ready to explore the project. To see what themes are available, expand the project by clicking on the + symbol to the left of the project title. Each one of the themes under the project can be turned on and off by clearing or filling the check boxes to the left of their name. Each theme has informative text buried within it but for a brief explanation of what is available to explore;

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- The Met Office Wave Hindcast shows the wave nearshore wave conditions at 67 locations around the coast as simulated by the Met Office. An arrow is presented and the size of the arrow represents the have height and the direction of the arrow shows the direction of wave advance. Using the timeline you can either step through these at hourly increments or you can run an animation and see the sequence of events. It is possible to zoom in on the timeline so that you can have finer time resolution.

- The Beach Erosion/Deposition maps show you the amount of erosion or deposition experienced over the storm season at 155 different beaches. These may be difficult to see zoomed out but zoom in on your favourite beach and it will be exquisitely detailed.

- The Storm Wind maps provide simulations of the wind fields across the North Atlantic for key periods in storm genesis. These maps are best left "off" and then "turn on" each specific map as you desire to see it. This will require zooming out considerably to get the information.
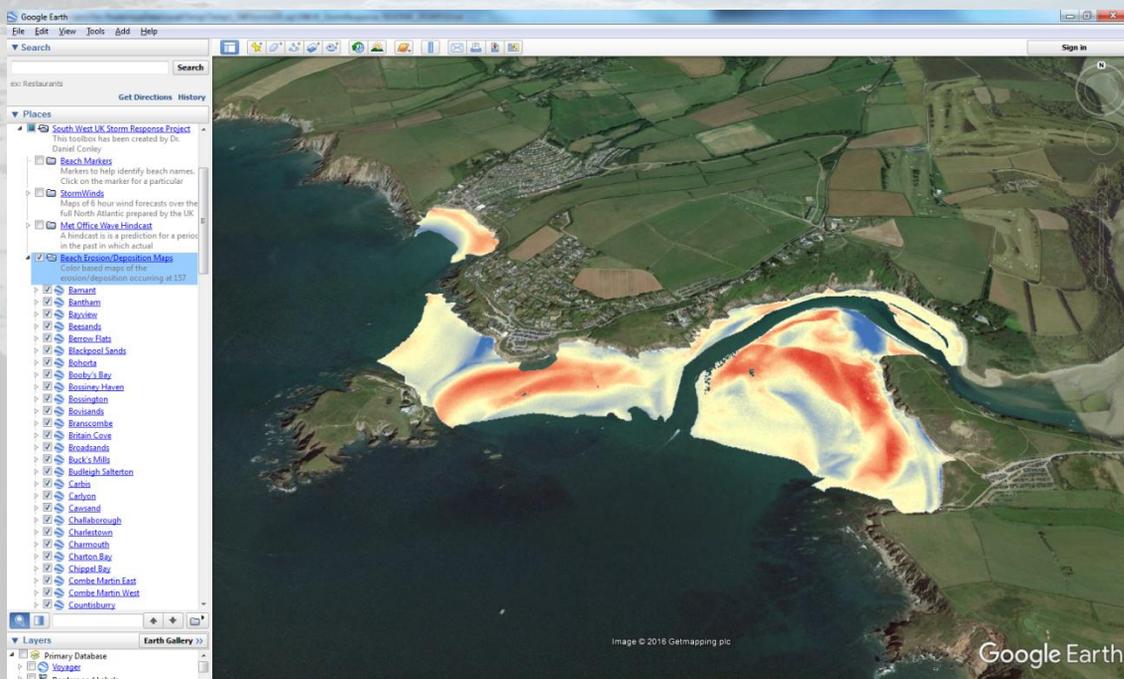

Figure 3, Screen-grab showing GE with the Beach Erosion/Deposition Maps selected. This is Bantham beach in South Devon showing erosion (blue shading) and accretion/deposition (red shading) as measured by aerial LiDAR.