



DEPARTMENT OF PHYSICS, UNIVERSITY OF TORONTO, 60 ST. GEORGE STREET, TORONTO, ONTARIO, CANADA M5S 1

January 11th, 2012

Re: Reference for Simon Engelhart

Concerning: Application for the position in Coastal Geological Oceanography in the University of Southern Mississippi

Dear Colleagues;

This is in response to your request of January 11th for a letter of recommendation for Dr Simon Engelhart who has applied for the position you have advertised in the area of Coastal Geological Oceanography. As you will know on the basis of Simon's cv. he completed his doctoral degree at the University of Pennsylvania under the supervision of Professor Benjamin Horton with a thesis on the interpretation of observations of Holocene relative sea level histories from the east coast of the US. I have been a co-author on two papers together with he and Horton to date and have found the interaction rewarding as the quality of the data analysis Engelhart has performed has been much higher than the usual norm in this field.

You will know that this area of research has become extremely active in the past decade as it connects very strongly to our ability to understand the impact on global sea level rise of the process of global warming that is occurring due to increasing greenhouse gas concentrations in the atmosphere. Along the US east coast the global warming component of the signal of global sea level rise is exacerbated by the continuing impact along this coast of the subsidence of the land associated with the continuing action of the glacial isostatic adjustment process. This process of land subsidence is that induced by the deglaciation of the North American continent that ended approximately 6000 years ago at the end of the last cycle of Late Quaternary glaciation and deglaciation..

Dr Engelhart should be seen to be a product of the group of internationally renowned sea level and coastal zone researchers that formed over the past two decades in Britain and Holland, a group of which his supervisor Professor Horton has become a leading member. Simon's work on the interpretation of basal peat derived sea level indicators has led to at least two very interesting results, both of which have been published in the journal "Geology". In the first, his analysis of data covering the last two millennia enabled him to identify a component of the records that could not be explained by tide gauge data corrected for the influence of the glacial isostatic adjustment (GIA) process. His hypothesis is that the misfit could be due to the impact of modern melting of the Greenland ice-sheet complex in response to global warming. This is entirely plausible but is yet to be confirmed. In the second set of analyses, which focused upon the full Holocene record, he was able to show that, although the time series from the northern and central parts of the US east coast were well fit by the my global theoretical model of the GIA process, those from the North Carolina

region and somewhat south were not. Furthermore, the best fit to the data from the northern part of the coast required a small but significant reduction of the viscosity of the upper mantle and transition zone in the GIA model in order to best fit the observations. I have since shown that this adjustment to the viscosity model required by the fit to US east coast data is also required at US west coast locations from which equivalently high quality radio-carbon dated RSL histories are available. In both of these projects Simon has done an excellent job in extracting very useful scientific results from the data. In consequence I have come to think very highly of him as a talented young scientist.

My intention is to continue to collaborate with Simon in the future and we are continuing to work together with Horton on several additional projects in which high quality RSL data are employed to confront the model of the GIA process that has been developed in my group. To this end we are working to extend the data base to include additional US east coast data from the coast of Florida and then through the Caribbean Sea and further south along the east coast passive continental margin of the South American continent to update and improve the data base that I have previously published from this region. A further area of interest is the coast of Alaska on which Simon has just presented a poster at the AGU fall meeting in San Francisco.

In my opinion Dr Engelhart is a very skilled young coastal marine geologist with a research programme that is highly active and focused upon the most interesting issues in this area of Earth science, one that is strongly connected to the issue of global climate change. In hiring him you would be acquiring an excellent young faculty member of great promise as a very high level contributor to his field. I recommend him to you with enthusiasm and without reservation

Sincerely



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University Professor and
Professor of Physics