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Correlation of Regional Sea-level Variability Mechanism, Sub-Mesoscale Dynamics, Climate Variability & Development of Sea-Level Variability Predicting Models (SLVPM)

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ABSTRACT

Lately, researchers in University of Washington, USA and University of Edinburgh found that the pools underneath the glacier, Thwaites, are draining out at an unprecedented rate and emptying themselves (Fig. 1). This unstoppably melting of the glacier into the ocean is mainly because of warmer seawater lapping at its underside. Thwaites is 4000m thick and is considered key to making projections of global sea level rise. Prof. Peter Clark, Oregon State University (OSU), attributed that the Glacier retreat was due to rising levels of carbon dioxide and other greenhouse gases (GHG), as opposed to other types of forces. If this continues, then the most of glaciers would disappear in the next few centuries and the glaciers loss in future will contributing to rising sea levels.

Hence, the present investigation aims to find out the correlation between the rise of GHG level and the sea-level rise vis-à-vis climate variability and can these be controlled through chemical processes, *e.g.* creating the Temperature Absorption Sinks (TAS) to control sea-level rise and unstoppably melting of the glaciers into the ocean mainly because of warmer seawater lapping at its underside and Carbon Absorption Sinks (CAS), GHG Detoxifiers to check the rising levels of carbon dioxide and other GHG by developing the Sea-Level Variability Predicting Models (SLVPM).

Next, an attempt would be made through SLVPM to study the correlation of regional sea-level variability mechanism, sub-mesoscale dynamics, climate variability and its impact on sea-level rise.

Regional variability of the sub-mesoscale dynamics study includes to examine satellite imageries with emphasis on the large scale kinematic and thermodynamic behavior of selected mesoscale convective systems, *e.g.* intense cloud clusters depressions and thunderstorms, to study vertical structure of these system. The values of characteristics, *e.g.* lifetime, distribution, trajectories, size and three dimensional structure, *i.e.*, vertical extent of these systems, would be computed.

Next, the kinematic features of the mesoscale convective systems would be correlated with sea-level variability on time and space scales, at the local, regional and global levels through the extracted sea surface temperature (SSTs) over the grid box, attributing the regional change to natural and anthropogenic radiative forcing agents and to bring out a few optimum values of these to develop (SLVPM)

It would be endeavor to check the melting of glaciers and rise of sea level through Magnetic Refrigeration Techniques (MRT), Magnetic Reactors and harnessing of lunar energy to reduce the temperature at the glaciers and that of sea surface through chemical processes by making use of the correlation of physico-chemical characteristics of catalysts and climate variability as well as through the

Fig. 1 The Thwaites Glacier part of the West Antarctica Ice Sheet is undergoing accelerated melt along with a number of other glaciers that could see sea levels rise by between 10 and 13 feet. (Graham 2017; photo credit: NASA)

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developed Sea-Level Variability Predicting Models (SLVPM).

References

Graham, K., 2017: Evidence points to collapse of Pine Island and Thwaites glaciers. *Digital Journal*, Accessed 3 March 2018, http://www.digitaljournal.com/print/article/508489#ixzz58jkGgtWV