Absolute Evidence of the Absence of an on-Going Sea Level Rise on Ouvéa Island of New Caledonia

Nils-Axel Mörner[#1]
[#]*Paleogeophysics & Geodynamics*
Stockholm, Sweden

Abstract

Changes in sea level are a hot topic, and frequently addressed in present day media. The quality of statements is another thing. Doomsday statements of a rapidly rising sea are not anchored in observational facts. In this paper, a recent photography taken of the shore on Ouvéa Island in New Caledonia provides a unique insight to the entire problem. By naked eye anyone can see for him/her-self that sea is not in a rising mode, but stable or even falling 5 cm, or so. This notion fits perfectly well with other observations in the Pacific and Indian Ocean indicating no present rise in sea level.

Keywords — *Sea level changes, No rise on Ouvéa Island, Rotational eustasy*

I. INTRODUCTION

Rapidly rising global sea level has in recent years become a central part of the story claimed by the IPCC (Intergovernmental Panel on Climate Change) and its proponents despite the absence of validation in observational facts (e.g. [1]). Still, the myth of a rapid sea level rise is effectively spread in media (e.g. [2]).

In November this year, the author undertook a sea level study of the Ouvéa Island in New Caledonia. Besides a whole spectrum of sea level data ranging from the Last Interglacial to the present changes in sea level, the author was able to take a photo that says more than hundreds of papers, because on this photo anyone can see by his/her own eyes that sea level is not rising (Fig. 1).

II. BACKGROUND MATERIAL

The science of sea level changes is a complicated issue and calls for deep knowledge in a number of fields. The author notices with sadness that people still think that there are shortcuts, and that an outsider can contribute with significant material (summarizing data maybe, but never advancing the science of sea level changes). Personally, I have worked intensively on the science of sea level changes for 54 years. It may therefore be appropriate to summarize the findings.Absolute eustatic sea level is not uniform over the globe, but differs, and we must talk about regional eustatic changes and try to define the regional eustatic component [3].

The coasts along Northwest Europe (subsiding along the North Sea coasts, rising in Scandinavia and Scotland) constitute an excellent test area of regional eustasy [4]. In this region, we can determine the present eustatic component with high precision at +1.1 mm/yr with a margin of error of ±0.2 mm/yr (e.g. [1], [5-7]).

In the Indian Ocean, the regional eustatic component can be set at about ±0.0 mm/yr for the last 40-50 years, and with a general low in the 18th century and a +50-60 cm high in the 17th century as established in the Maldives, Goa, India, and Bangladesh ([1], [8-11]).

In the Pacific, new records from the Fiji Islands [12-13] and New Caledonia [14] give a very similar record of regional eustasy during the last 500 years: a +70 cm high in the 17th century, a low in the 18th century and full stability (±0.0 mm/yr) over the last 50-70 years. A present stability is also recorded in other Pacific islands like Tuvalu, Vanuatu, Kiribati and Majuro [1].

Globally, this means that the oceanic eustatic component during the last 500 years was dominated by *rotational eustasy* and *lunar-tidal super cycles* [12], [15-16]. Glacial eustasy and thermal expansion are subordinate processes [17].

III. DISCUSSION: OBSERVING A PROCESS ON A PHOTOGRAPHY

Fig. 1 is a photography taken of the sandy beach north of Saint Joseph on Ouvéa Island in New Caledonia. It is quite unique because it directly transfers the dynamics of the beach. This beach records the dynamic facts of sea level changes: sea level is not in a rising mode, on the contrary it is stationary or even falling by about 5 cm. The limit of wave washing has been displaced seaward by about 2 m and about 5 cm in vertical sense. A new coastal zone has become added, which now is in the process of becoming over-grown. Anyone can see this with his/her own eyes. The message is straightforward; the absence of an on-going sea level rise (Fig. 1).

Fig 1: The coast north of Saint Joseph on Ouvéa Island of New Caledonia (photo: Mörner 2018-11-14). The washing limit has in recent years mowed 2 m seaward and about 5 cm down. The new coastal zone is now in the process of becoming over-grown. This lends firm evidence that sea level is not rising on Ouvéa Island.

IV. DISCUSSION: PUTTING THE OBSERVATION IN A GLOBAL CONTEXT

In Fig. 2, the new results from Ouvéa Island are put in context of previous sea level observations in the Maldives ([8], [10]), Bangladesh [9], Goa, India ([1], [11]) and Fiji [12-13] and some other Pacific islands [1].

Duvat [18] summarized the decadal changes in size (area) of 709 atoll islands in the Pacific and Indian Ocean. Hardly any atoll has decreased in size (as would have been the case if sea level really was rising) and the vast majority has remained stable, indicating stable sea level conditions. This is illustrated in Fig. 3.

Understanding coastal dynamics [19] implies that the shore (land/sea interface) can be deformed both vertically by sea level changes and horizontally by a number of dynamic factors (Fig. 4). Consequently, atoll islands my change laterally without any changes in sea level.

V. CONCLUSIONS

The Fig. 1 photography provides a spectacular evidence of the absence of a present sea level rise. Anyone can with his/hers own eyes see that sea is not rising on the coast of Ouvéa Island in New Caledonia. The limit of wave actions (the washing limit) has, in the last 5 years, been moved 2 m seaward and 5-10 cm vertically down. A new zone has become added, and it is now in the process of becoming overgrown.

This is clear evidence of the fact that eustatic sea level is not at all in the process of rising, but remaining stable (as recorded in Fig. 2, and now also in Fig. 3).

Rotational eustasy implies that water masses are displaced between high-latitudes and the equatorial bulge zone due to changes in rotation ([12], [15]): speeding up during Grand Solar Minima (the Maunder Minimum in the 17th century and the Dalton Minimum in the early 19th century) and slowing down at Grand Solar Maxima (at the 18th century maximum and at today's maximum).

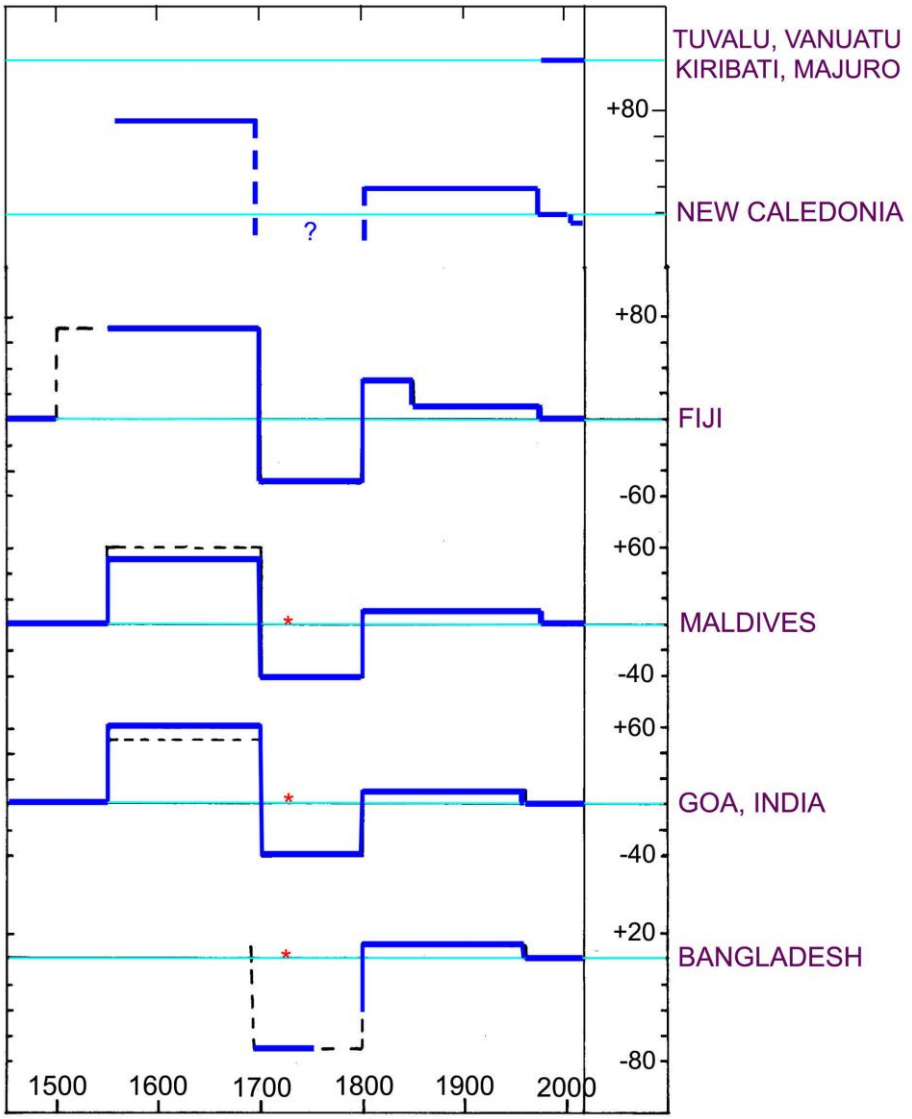

Fig 2: Sea level changes during the last 500 years as documented in the Pacific and Indian Ocean. The records indicate that rotational eustasy and lunar-tidal super cycles have been the dominant sea level variables during the last 500 years ([12, [15]).

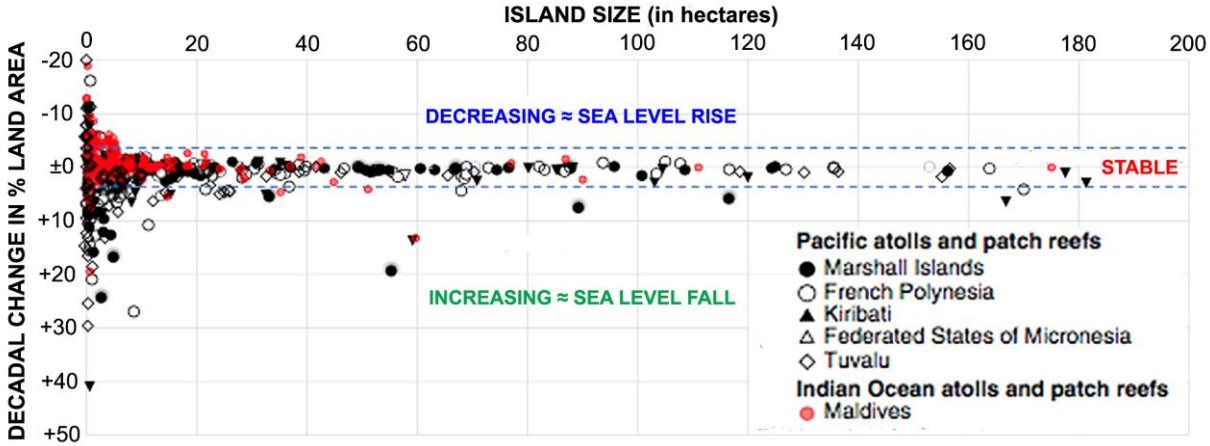

Fig 3: Changes in size of 709 atoll islands in the Pacific and Indian Ocean (redrawn in upside-down view from Duvat [18]), providing additional evidence that the equatorial eustatic component has remained stable for the past decades.

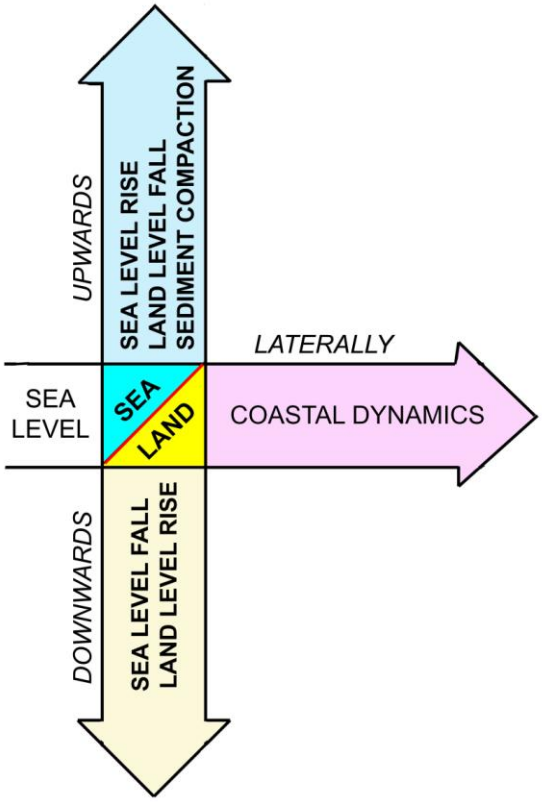

Fig 4: Costal dynamics deform the shore laterally (horizontally), while the changes in sea level or land level deform the shorelevel vertically (modified from [19]).

ACKNOWLEDGMENT

The sea level investigation on the Ouvéa Island was performed on November 6-16, 2018, and the first summary was presented at the EIKE Conference in Munich, November 23-24, 2018.

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