

# *The WASA project: Changing Storm and Wave Climate in the Northeast Atlantic and Adjacent seas?*

*by the WASA group*

with contributions by

Hans Alexandersson<sup>6</sup> Evert Bouws<sup>7</sup>, Juan Carlos Carretero<sup>1</sup>, Johannes Guddal<sup>2</sup>, Ignacio Lozano Gonzalez<sup>1</sup>, Heinz Guenther<sup>4</sup>, Dennis Jannink<sup>7</sup>, Viacheslav V. Kharin<sup>3</sup>, Gerbrand Komen<sup>7</sup>, Hinrich Reichardt<sup>3</sup>, Wolfgang Rosenthal<sup>4</sup>, Antonio Ruiz de Elvira<sup>1</sup>, Torben Schmith<sup>5</sup>, Mark Stawarz<sup>4</sup> and Hans von Storch<sup>3,4</sup>

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WASA is an abbreviations of **W**aves and **S**torms in the North **A**tlantic. The project is funded by the European Union's Environment program. Coordinator is [Hans von Storch](#). Partner laboratories are:

1. Clima Maritimo, Madrid, Spain
2. Det Norske Meteorologisk Institutt, Bergen, Norway
3. Max-Planck-Institute of Meteorology, Hamburg, Germany
4. Institute for Hydrophysics, GKSS, Geesthacht, Germany
5. Danmarks Meteorologiske Institut, Copenhagen, Denmark;
6. Sveriges Meteorologiska och Hydrologiska Institut, Norrkoeping, Sweden
7. Koninklijk Nederlands Meteorologisch Instituut, De Bilt, The Netherlands

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## ABSTRACT

The European project WASA has been set up to verify hypotheses of a

worsening storm and wave climate in the Northeast Atlantic and its adjacent seas. The observational record of the past hundred years is analysed and GCM based scenarios of possible future climate change due to increasing atmospheric greenhouse gas concentrations are examined.

In the present paper, the status of WASA is reviewed and a preliminary assesement of the storm climate in the past hundred years and of the wave climate in the past thirty is given. Also, an overview of the wave hindcast activities is given.

A major methodical obstacle for WASA are the inhomogeneities of the observational record, both in terms of local observations and of analysed products (such as weather maps), which usually produce an artificial increase of extreme winds and waves. To overcome these obstacles, WASA is relying on robust indicators, such as annual distributions of geostrophic wind speeds, and on state-of-the-art hindcast simulations with wave models.

The results obtained so far are:

- The storm climate in the near-coastal areas of Northwest Europe has not systematically worsened in the past century. There is, however, considerable natural variability on the decadal time scale.
- The statistics of the significant wave height in the Northeast Atlantic has undergone a steady increase of the wave height in the last 30 years. An upper bound estimate for this increase amounts to 2-3 cm/year for the 50% percentile of the annual wave height distribution and 3-4 cm/year for the annual 10% percentile.

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*Hans von Storch, 24 November 1996*

