Accepted EGU22 Abstract for Presentation at the EGU (European Geoscience Union) General Assembly, 23-27 May 2022, Vienna, Austria

Compound flooding due to interaction of waves and river discharge at Breede Estuary, South Africa

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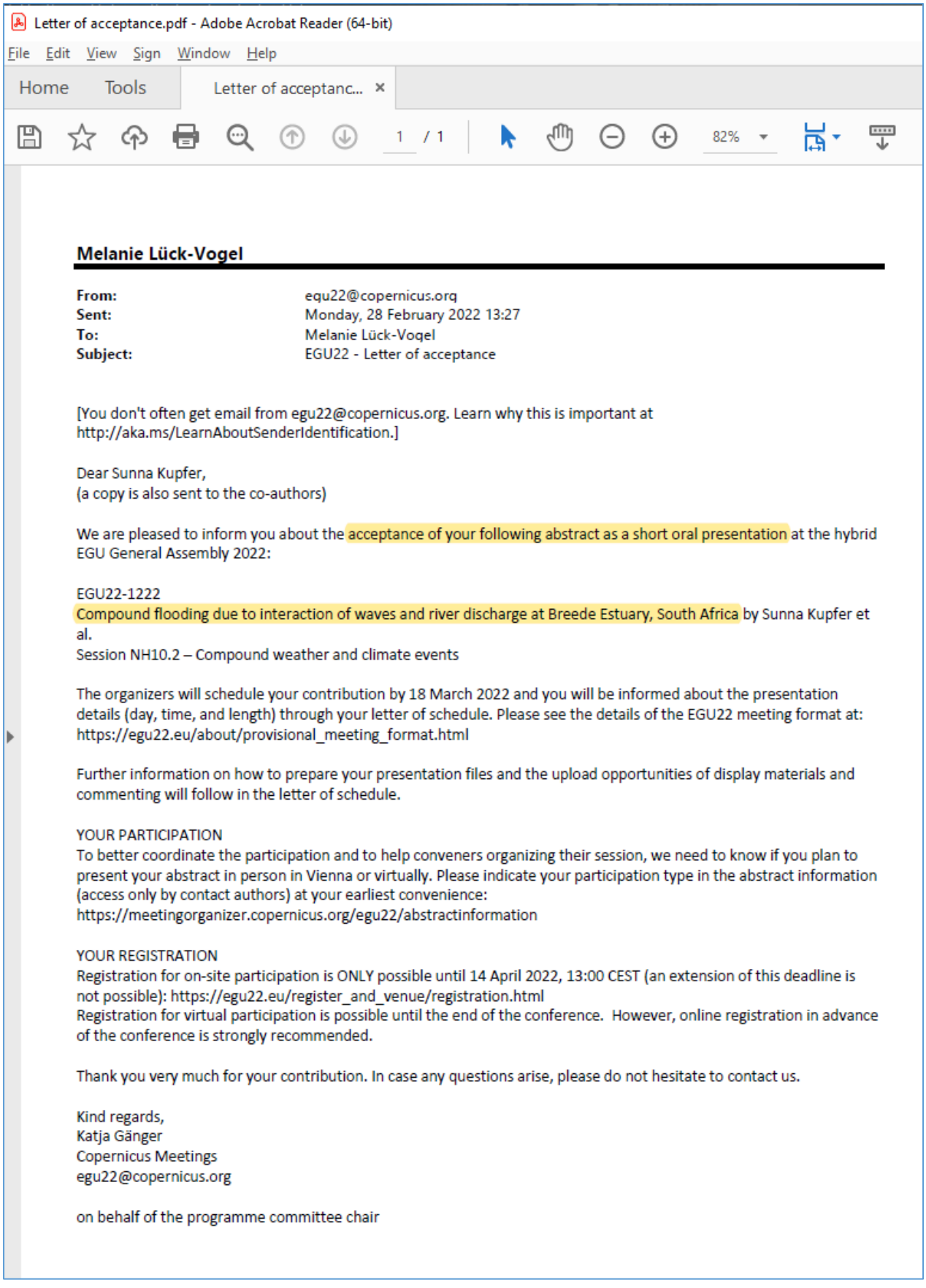
Recent studies on compound flooding have considered the interaction of storm-tide and fluvial or pluvial flood drivers, whereas the contribution of waves to compound flooding so far has been neglected. In this study, we investigate compound flooding from waves, tides and river discharge at Breede Estuary, South Africa, using a hydrodynamic model. We estimate the contribution of extreme waves to compound flooding by analysing the driver interaction and by quantifying vertical and horizontal differences of flood characteristics. We further consider the additional effect of waves on flood timing and compare results of compound flood scenarios to scenarios in which single drivers are omitted. We find that flood characteristics are more sensitive to river discharge than to waves, particularly when the latter only coincide with high spring tides. When interacting with river discharge however, the contribution of waves is high, causing larger flood extents and higher water depths. With high wave intensities the first flooding can begin up to 12 hours earlier. Our findings provide insights on the magnitude and timing of compound flooding in an open South African estuary and demonstrate the need to account for the effects of waves during compound flooding in future flood impact assessments of similar coastal settings.

(see Letter of Acceptance below)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Melanie Lück-Vogel

From: equ22@copernicus.org
Sent: Monday, 28 February 2022 13:27
To: Melanie Lück-Vogel
Subject: EGU22 - Letter of acceptance

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Dear Sunna Kupfer,
(a copy is also sent to the co-authors)

We are pleased to inform you about the acceptance of your following abstract as a short oral presentation at the hybrid EGU General Assembly 2022:

EGU22-1222
Compound flooding due to interaction of waves and river discharge at Breede Estuary, South Africa by Sunna Kupfer et al.
Session NH10.2 – Compound weather and climate events

The organizers will schedule your contribution by 18 March 2022 and you will be informed about the presentation details (day, time, and length) through your letter of schedule. Please see the details of the EGU22 meeting format at: https://egu22.eu/about/provisional_meeting_format.html

Further information on how to prepare your presentation files and the upload opportunities of display materials and commenting will follow in the letter of schedule.

YOUR PARTICIPATION
To better coordinate the participation and to help conveners organizing their session, we need to know if you plan to present your abstract in person in Vienna or virtually. Please indicate your participation type in the abstract information (access only by contact authors) at your earliest convenience:
https://meetingorganizer.copernicus.org/egu22/abstractinformation

YOUR REGISTRATION
Registration for on-site participation is ONLY possible until 14 April 2022, 13:00 CEST (an extension of this deadline is not possible): https://egu22.eu/register_and_venue/registration.html
Registration for virtual participation is possible until the end of the conference. However, online registration in advance of the conference is strongly recommended.

Thank you very much for your contribution. In case any questions arise, please do not hesitate to contact us.

Kind regards,
Katja Gänger
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on behalf of the programme committee chair