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# The Effect of Rain on the Sea Surface

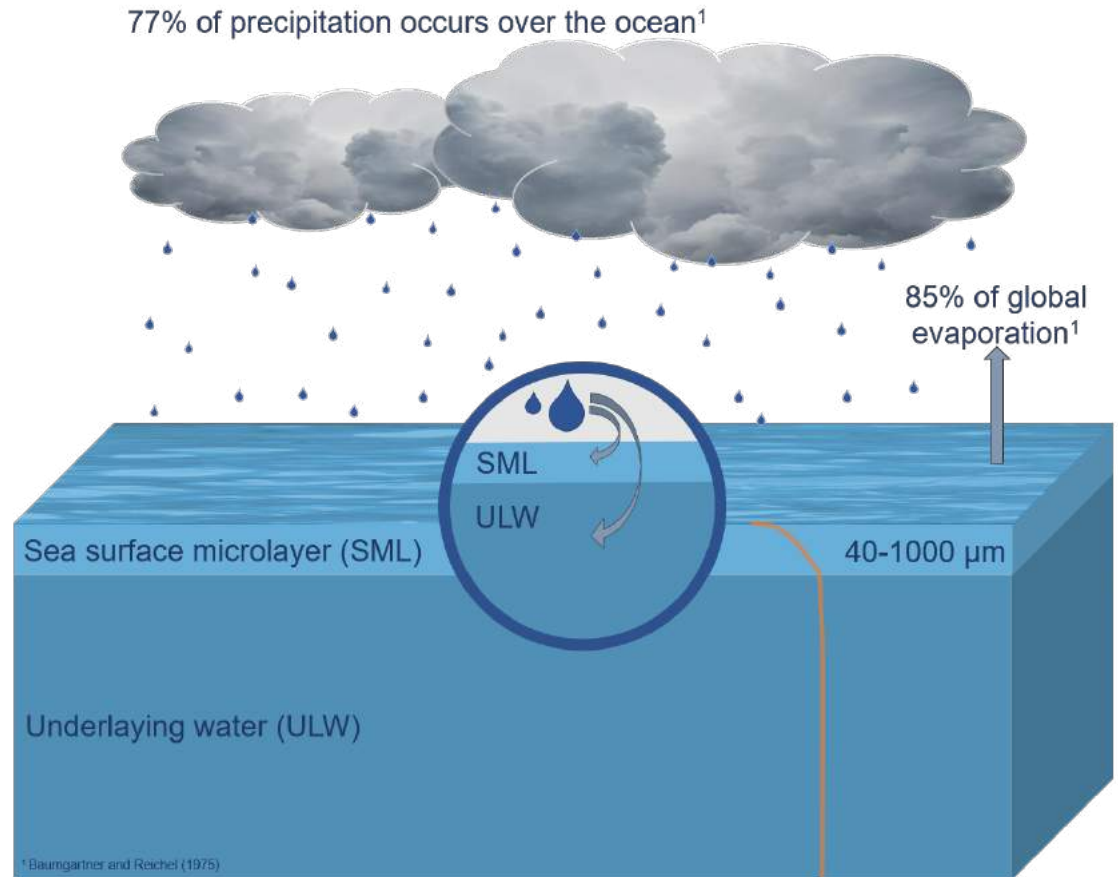
Lisa Gassen,  
Prof. Dr. Oliver Wurl,  
Dr. Mariana Ribas Ribas,  
Dr. Thomas Badewien



# Introduction

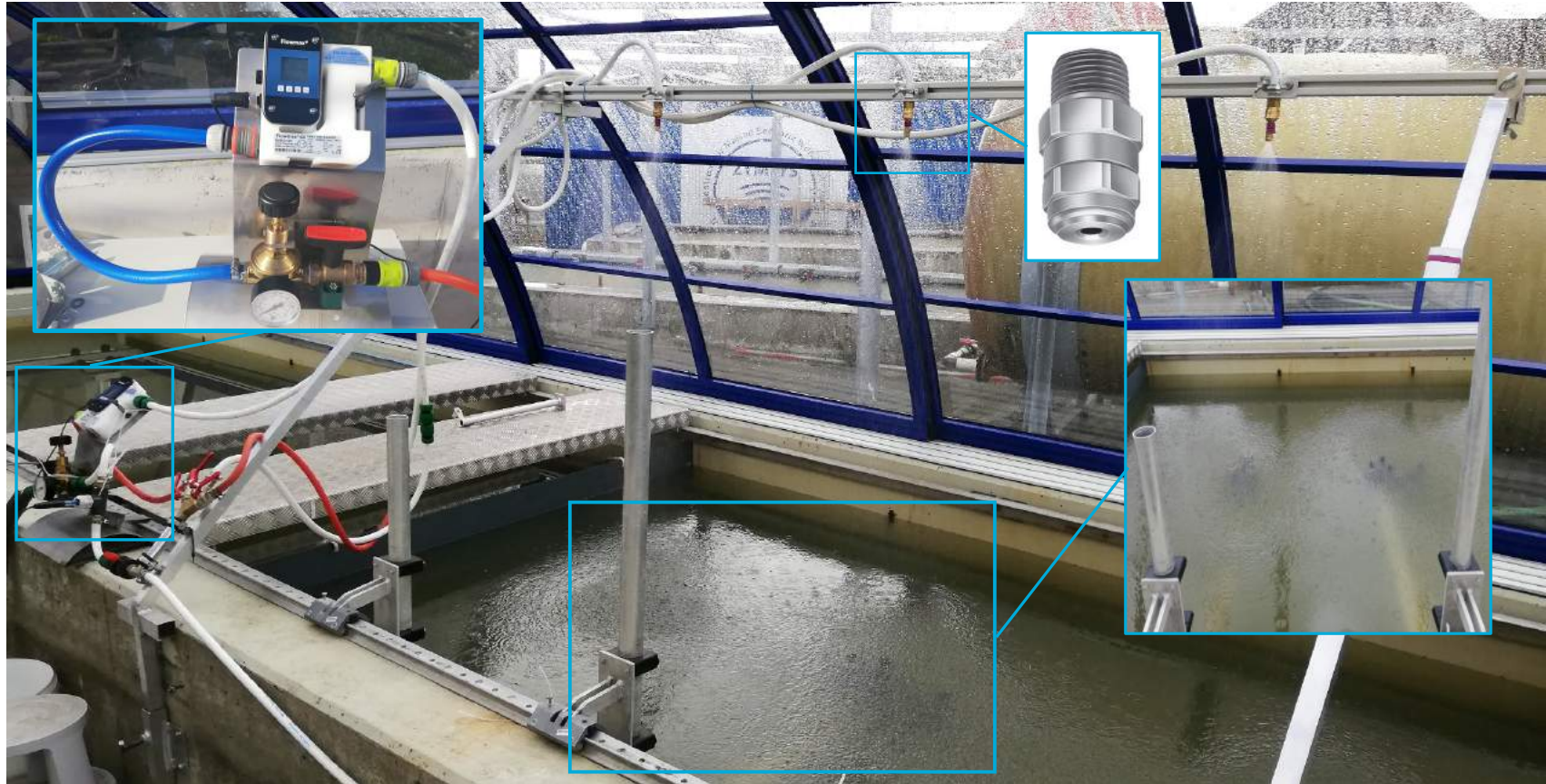
*“The sea-surface microlayer is that microscopic portion of the surface ocean which is in contact with the atmosphere and which may have physical, chemical or biological properties that are measurably different from those of adjacent sub-surface waters”*

(Hunter, 2005)



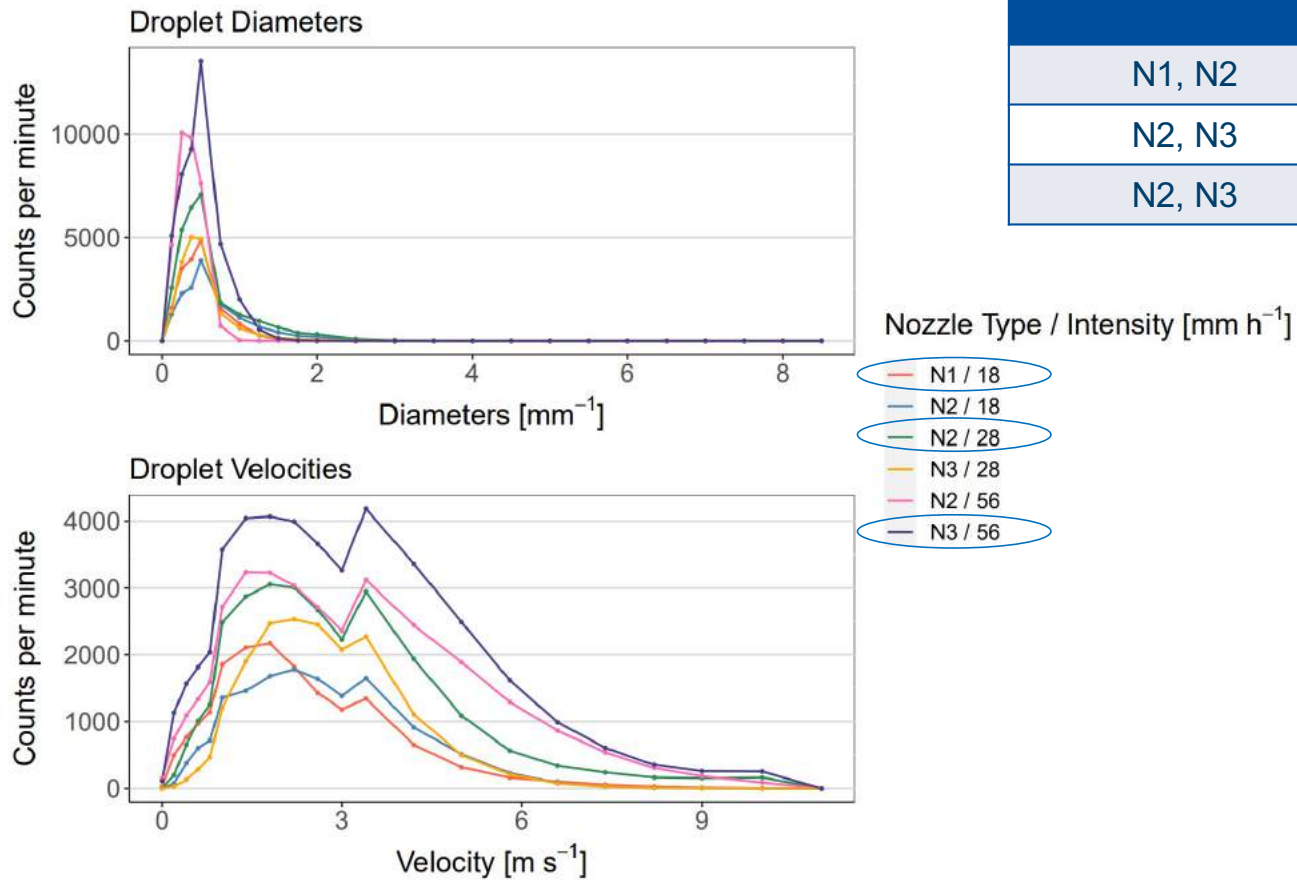
How does freshwater distribute over the sea surface?

# Experimental Setup

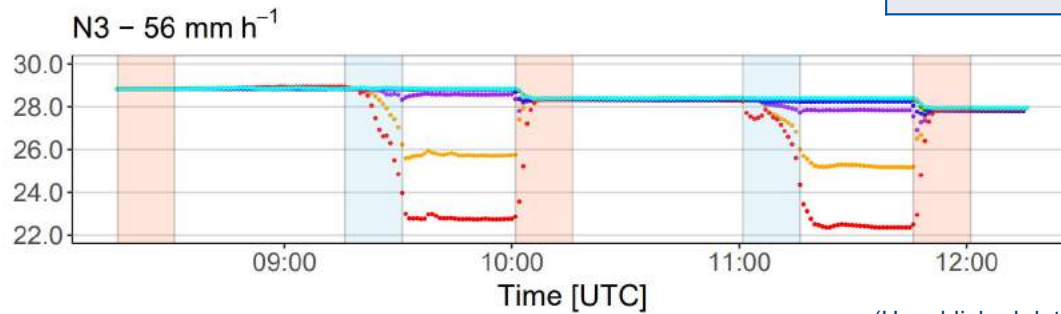
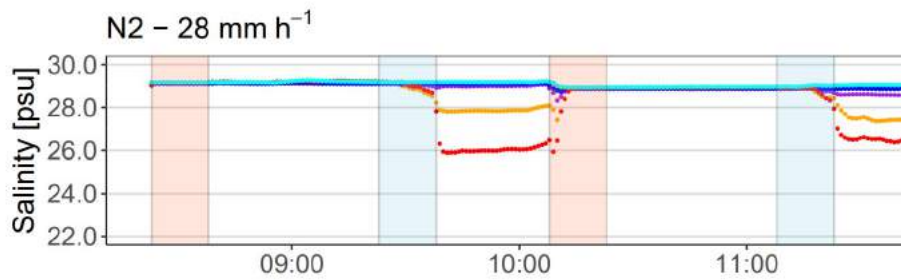
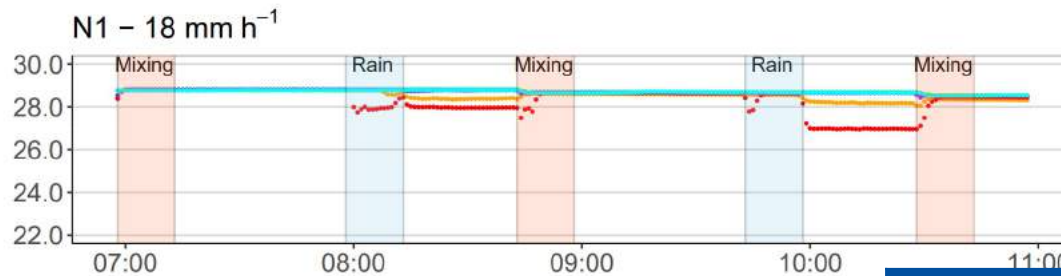


# Rain Intensities

Nozzle Types	Rain intensity [mm h <sup>-1</sup> ]
N1, N2	18
N2, N3	28
N2, N3	56



# Results

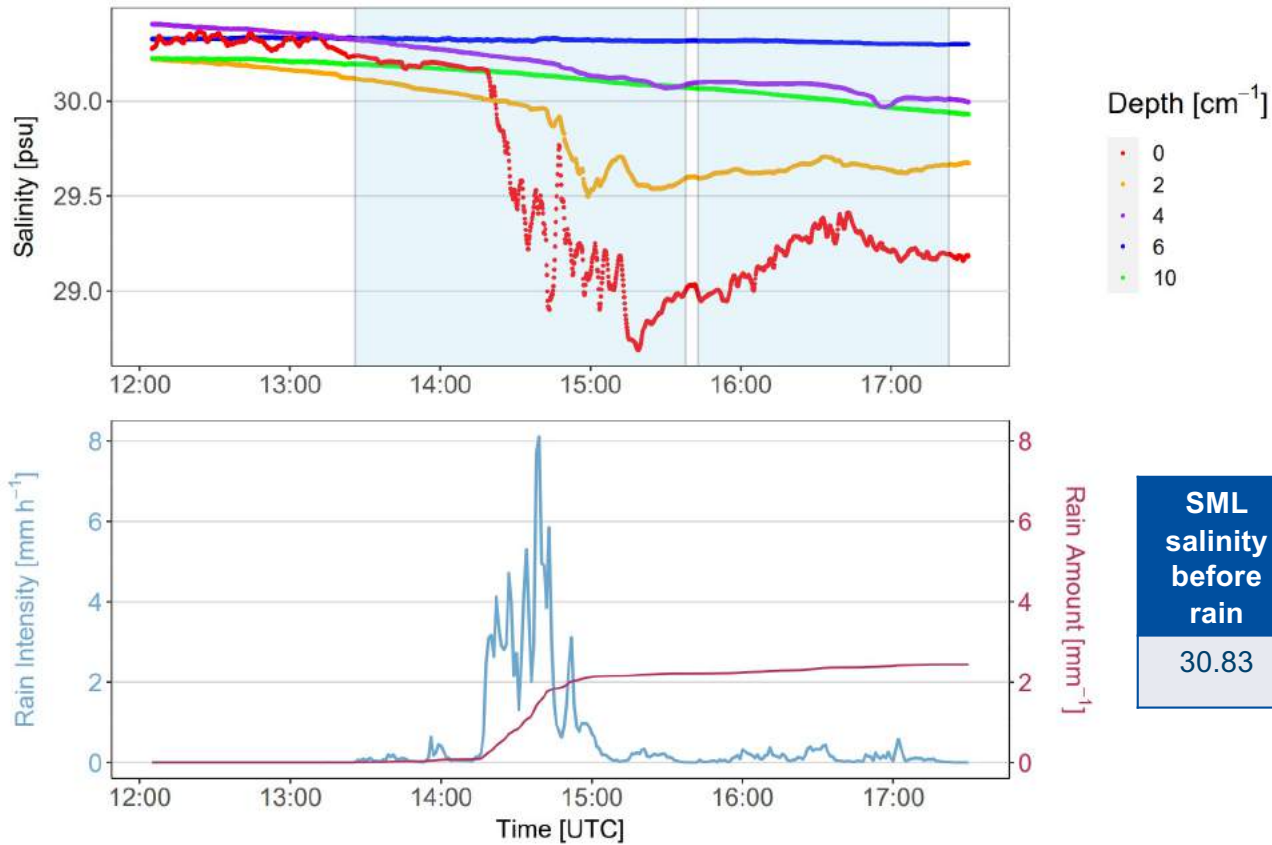


Nozzle type	Rain intensity [mm h <sup>-1</sup> ]	SML salinity before rain	SML salinity after rain	Total salinity change
N1	18	28.89	19.24	9,65
N2	28	29.12	22.99	6.13
N3	56	28.93	17.93	10.86

(Unpublished data)

# Results of natural rain experiment

Natural rain event (13.07.2021)



## Summary

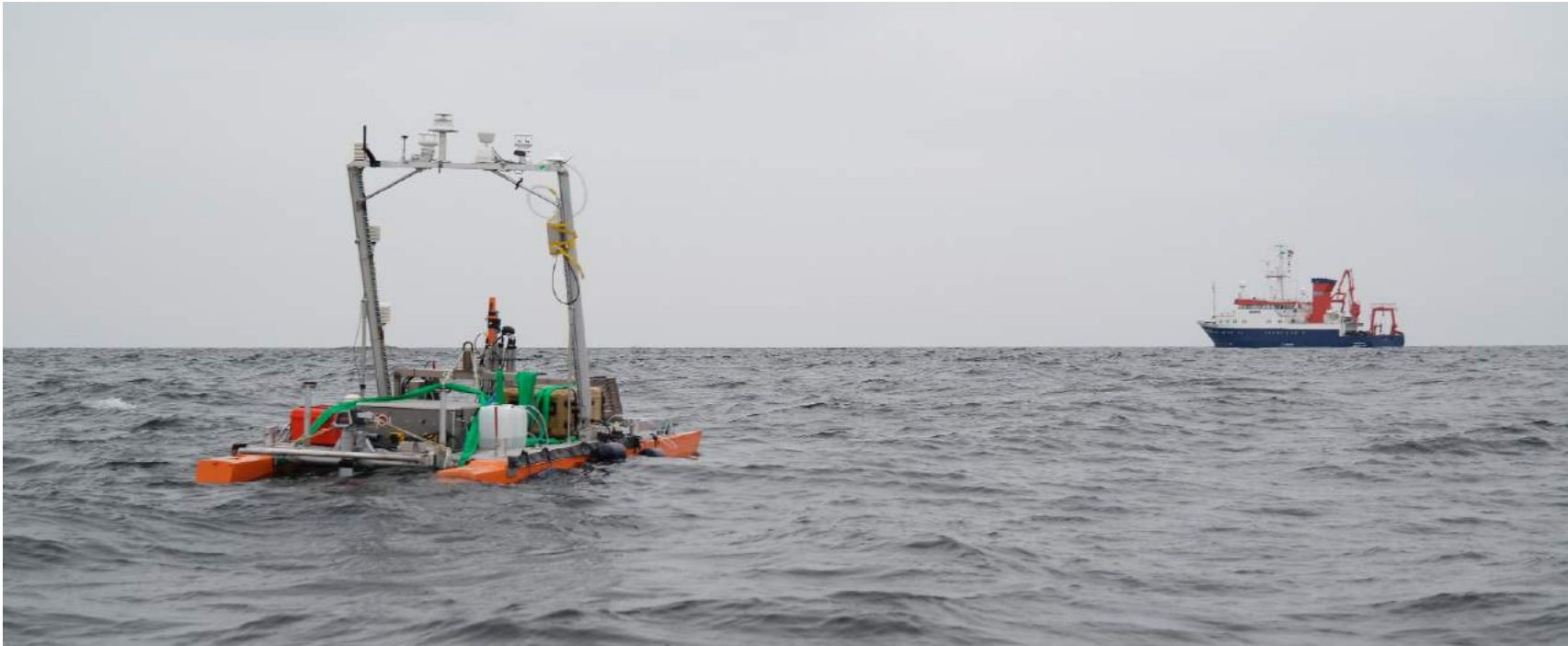
- Salinity change of up to 6 psu, changes down to 6 cm depth in a water body free of turbulent mixing
- On average 4.9% of the freshwater evaporated during the experiment
- Studies about natural rain events on sea are ongoing



Changes in total salinity and with depth appear to be mainly dependent on rain intensity

Droplet sizes and velocities control near surface salinity, in particular SML

# Prospects







# Thank you for your attention!

## Acknowledgements

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