



CCN in the marine environment: Results from two intensive measurement campaigns - The Eastern North Atlantic (Mace Head) and The Southern Ocean (PEGASO cruise)

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Marine aerosol occurring in cloud condensation nucleus (CCN) sizes suggest that it may contribute notably to the CCN population [1, 2], but further cloud droplet number concentration would strongly depend on the ambient (cloud) conditions, such as available water content, supersaturation and competition between the CCN of different composition [3]. Since the global importance of marine aerosol particles to the cloud formation was postulated several decades ago [4], it has progressed from the evaluation of the nss-sulphate and sea salt effects to an acknowledgement of the significant role of organic aerosol [5]. It was demonstrated that primary marine organics, despite its hydrophobic nature, can possess the high CCN activation efficiency, resulting in the efficient cloud formation [6].

Results from two intensive measurement campaigns in The Eastern North Atlantic (Mace Head) and The Southern Ocean (PEGASO cruise) is presented here with the main focus on ssCCN dependence on aerosol chemical composition and, especially, origin and sources of marine organic. We investigate the activation of sea spray composed of the sea salt and externally mixed with nss-sulphate as well as the sea spray highly enriched in organics, stressing the importance of the latter to the formation of the cloud droplets. We also explore the suitability of existing theories to explain the marine aerosol activation to CCN.

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