



## **Nucleation from seawater emissions during mesocosm experiments**

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Nucleation and new particle formation in the marine atmosphere is usually associated to the presence of macroalgae emerged at low tides in coastal areas, while these processes were very rarely detected away from coastlines. In the present study, we evidence the formation of new particles from the 1 nm size above the seawater surface in the absence of any macroalgae population.

Within the SAM project (Sources of marine Aerosol in the Mediterranean), seawater mesocosms experiments were deployed in May 2013 at the STARESO in western Corsica, with the goal of investigating the relationship between marine aerosol emissions and the seawater biogeochemical properties. Three mesocosms imprisoned 3,3 m<sup>3</sup> of seawater each and their emerged part was flushed with aerosol-filtered natural air. One of these mesocosms was left unchanged as control and the two others were enriched by addition of nitrates and phosphates respecting Redfield ratio (N:P = 16) in order to create different levels of phytoplanktonic activities. We followed both water and air characteristics of three mesocosms during a period of three weeks by using online water and atmospheric probes as well as seawater daily samples for chemical and biological analysis. Secondary new particle formation was followed on-line in the emerged parts of the mesocosms, using a SMPS for the size distribution above 6 nm and a Particle Size Magnifier (PSM) for the number of cluster particles between 1 and 6 nm. We will present how the cluster formation rates and early growth rates relate to the gas-phase emissions from the seawater and to its biogeochemical properties.

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