



Mapping the interdisciplinarity of research on the role of microbial aerosols in atmospheric processes

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Mapping the interdisciplinarity of research on the role of microbial aerosols in atmospheric processes.

In 2006, the first interdisciplinary workshop on the role of microorganisms in atmospheric processes was held in Avignon, France. This was followed by multiple symposia on this subject, including the present IUGG symposium, all having the goal of fostering interdisciplinary research. Here we attempt to evaluate the extent to which effective interdisciplinarity has been achieved. Using network mapping tools, we have created a map representing the interaction of disciplines in the biological and physical sciences in co-authorship of publications. This map is based on a bibliographic search conducted in Web of Science using key words targeting articles published since 2006 that address subjects related to the role of microorganisms in atmospheric processes. The 5000 references corresponding to the key words were screened manually to obtain those that specifically address this role or indirectly because they assess either 1) the importance of specific sources of the microorganisms found in the outdoors atmosphere, 2) dissemination of microorganisms relative to their potential to be present in contexts where they could influence atmospheric processes (estimation of residence time, presence in clouds), 3) properties useful to parameterize models of dissemination (flux rates, aerodynamic properties), or 4) behaviors that would allow them to affect atmospheric processes (ice nucleation and cloud condensation activities, biosurfactant production). This screening procedure resulted in a final set of publications that represented about 3% of the initial set captured by the inquiry. The networks revealed in this work will be useful in particular to identify interdisciplinary collaborations to be re-enforced.