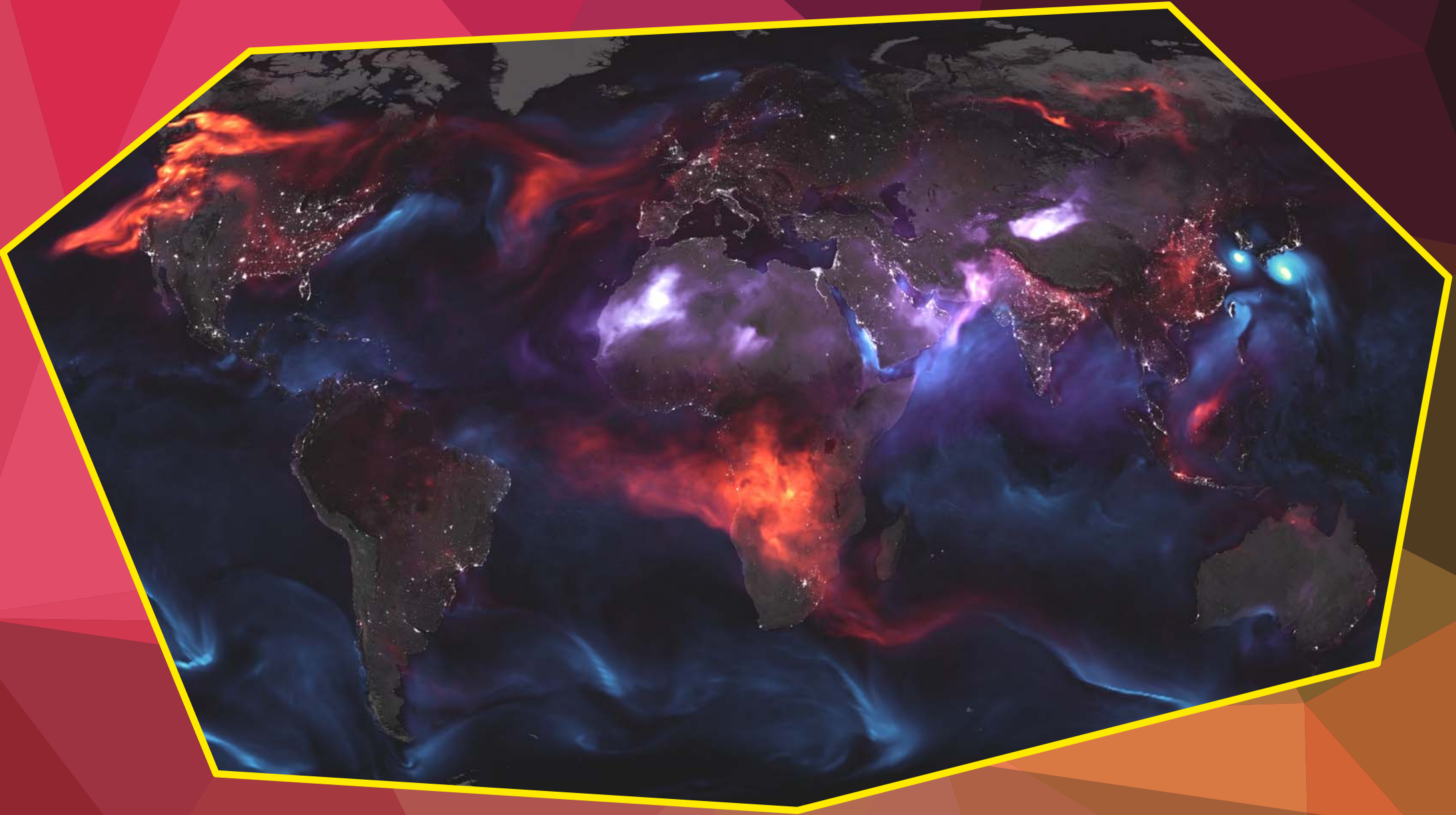


PHYSICS COLLOQUIA 2020



Aerosol particles are an important constituent of the global climate system. They not only affect the atmospheric radiation budget through scattering and absorption of solar radiation and through their role as cloud/ice nuclei but also impact air quality and human health. Both natural and human processes contribute to the global aerosol load. Whereas coarse-mode aerosol ($>1 \mu\text{m}$ diameter) mainly originates from natural aerosol sources, fine mode aerosol is frequently associated with human activities. Although substantial effort has been undertaken in the last decades to improve our knowledge about aerosols and their role in the global climate system, aerosol-cloud-radiation interactions still pose the largest uncertainty to estimates and interpretations of the Earth's changing energy budget (IPCC, 2013). In order to decrease these uncertainties, research is necessary. Thereby, research aircraft like the German Aerospace Center (DLR) Falcon and the NASA DC-8 provide unique platforms to study the horizontal and vertical distribution of aerosols and their microphysical, chemical and optical properties. In this talk, I will present results of global coarse mode aerosol observations and measurements in wildfire plumes, discuss the modification of mineral dust properties during transport and mixing with anthropogenic pollution, and show how our measurements can contribute to improve climate models. The presentation will be close with an outlook on high-priority research questions that future work and collaborations will aim to address.

10 03

Bernadett Weinzierl | Universität Wien, Vienna, Austria
GLOBAL MEASUREMENTS OF FINE AND COARSE MODE AEROSOL – INSIGHTS FROM RECENT AIRCRAFT FIELD EXPERIMENTS



UNIVERSITÀ DEGLI STUDI DI MILANO
DOTTORATO DI RICERCA IN FISICA
ASTROFISICA E FISICA APPLICATA

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