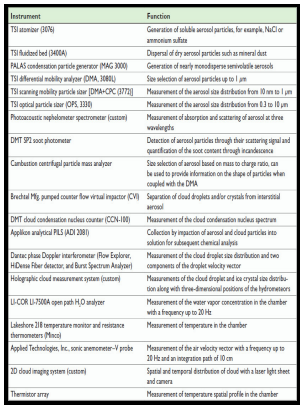
Condensation-nuclei (Aitken particle) measurement system used in the NASA Global atmospheric sampling program

National Aeronautics and Space Administration, Scientific and Technical Information Office - ACP



Instrument	Function
TSI atomizer (3076)	Generation of soluble aerosol particles, for example, NaCl or ammonium sulfate
TSI fluidized bed (3400A)	Dispersal of dry aerosol particles such as mineral dust
PALAS condensation particle generator (MAG 3000)	Generation of nearly monodisperse semivolatile aerosols
TSI differential mobility analyzer (DMA, 3080L)	Size selection of aerosol particles up to 1 μm
TSI scanning mobility particle sizer (DMA+CPC (3772))	Measurement of the aerosol size distribution from 10 nm to 1 μm
TSI optical particle sizer (OPS, 3330)	Measurement of the aerosol size distribution from 0.3 to 10 μm
Photoacoustic nephelometer spectrometer (custom)	Measurement of absorption and scattering of aerosol at three wavelengths
DMT SP2 soot photometer	Detection of aerosol particles through their scattering signal and quantification of the soot content through incandescence
Cambustion centrifugal particle mass analyzer	Size selection of aerosol based on mass to charge ratio, can be used to provide information on the shape of particles when coupled with the DMA
Brechtel Mfg. pumped counter flow virtual impactor (CVI)	Separation of cloud droplets and/or crystals from interstitial aerosol
DMT cloud condensation nucleus counter (CCN-100)	Measurement of the cloud condensation nucleus spectrum
Appilion analytical PILS (ADI 2081)	Collection by impaction of aerosol and cloud particles into solution for subsequent chemical analysis
Dantec phase Doppler interferometer (Flow Explorer, HiDense Fiber detector, and Burst Spectrum Analyzer)	Measurement of the cloud droplet size distribution and two components of the droplet velocity vector
Holographic cloud measurement system (custom)	Measurements of the cloud droplet and ice crystal size distribution along with three-dimensional positions of the hydrometeors
LI-COR LI-7500A open path H_2O analyzer	Measurement of the water vapor concentration in the chamber with a frequency up to 20 Hz
Lakeshore 218 temperature monitor and resistance thermometers (Pt100)	Measurement of temperature in the chamber
Applied Technologies, Inc., sonic anemometer–V probe	Measurement of the air velocity vector with a frequency up to 20 Hz and an integration path of 10 cm
2D cloud imaging system (custom)	Spatial and temporal distribution of cloud with a laser light sheet and camera
Thermistor array	Measurement of temperature spatial profile in the chamber

Description: -
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Napoleon, -- I, Emperor of the French.
Condensation.
Particles (Nuclear physics)
Atmospheric nucleation -- Measurement.
Air -- Pollution -- Measurement.Condensation-nuclei (Aitken particle) measurement system used in the NASA Global atmospheric sampling program
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Livre de poche -- 345
NASA technical paper -- 1415.
NASA technical paper ; 1415Condensation-nuclei (Aitken particle) measurement system used in the NASA Global atmospheric sampling program
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Tags: #Atmospheric #Aerosols: #Some #Highlights #and #Highlighters, #1950 #to #2018

A global view on the effect of water uptake on aerosol particle light scattering

Impact of fuel quality regulation and speed reductions on shipping emissions: implications for climate and air quality.

ACP

With routine particle chemistry emerging in the literature, advanced studies adopted special laboratory measurements of particle chemistry that began to explore hypotheses about particle components Chow et al. These three compositions were chosen because they can be produced using a flow tube reactor or an atomizer, and represent a range of different particle compositions similar to those found in the atmosphere. Error bar represents the 1 standard deviation.

Characterizing the Particle Composition and Cloud Condensation Nuclei from Shipping Emission in Western Europe

Furthermore, the particle transport efficiencies of the sampling line between the inlet and the measurement container have been calculated with respect to diffusion and inertial deposit in bends. In-situ shipboard measurements from the RV Discoverer ACE 1 and the RV Professor Vodyanitskiy ACE 2 , combined with calculated back trajectories can be used to define the physical properties of the submicron aerosol in marine boundary layer MBL air masses from the remote Southern Ocean, western Europe, the Iberian coast, the Mediterranean and the background Atlantic Ocean.

Sampling Characteristics of an Aircraft

Through his activities, man can modify these natural emissions.

Glossary of Terms and Acronyms

The measurement uncertainty for both instruments is shown in Fig. This photograph shows a long winding track of a primary electron and four branches of tracks made by secondary electrons. Microwave radiation is emitted by the Earth's surface and by water droplets within clouds.

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