

Instrument	Measurement	Sponsor
Atmospheric State		
Rosemont 102 probe	temperature	EC
Rosemont 102 probe	temperature	NRC
Rosemont 102 probe	temperature	NRC
NCAR Reverse Flow probe	temperature	EC
LICOR LIC2G2 water vapour/CO2 instrument	H2O mixing ratio, CO2 mixing ratio	EC/NRC
EG7G chilled-mirror hygrometer	humidity	EC
Rosemount 858 gust probe	vertical velocity	NRC
LWC and TWC		
Rosemount Icing (RICE) Probe	Detects supercooled water	EC
Vibrameter	Detects supercooled LWC	EC
Nevzorov LWC/TWC probe	Hot-wire, separate estimates of LWC and TWC	EC
PMS CSIRO King Probe	Liquid water concentration	EC
Cloud Microphysics		
DMT ConterFlow Virtual Impactor (CVI) for TWC	total water content	EC
DMT Cloud, Aerosol, and Precipitation Spectrometer (CAPS)	T, LWC, Nd, cloud size dist(0.5-1500 mm)	PNNL
SPEC Cloud Particle Imager (CPI)	cloud particle image (15-2500 mm)	PNNL
PMS FSSP-100X	small particle spectrum (3-45 um)	EC
PMS FSSP-100X	small particle spectrum (5-95 um)	EC
PMS 2D2C	imaging of cloud particles, nominally 25-800 um	EC
SPEC 2DS (10 micron config.)	cloud PSD 10-1280 um, orthogonal channels, and images	EC
PMS 2DP	imaging of cloud particles, nominally 200-6400 um	EC
DMT CDP	cloud droplets 2-50 um	DMT
Korolev cloud extinction meter	cloud extinction	EC
<i>Plus two of the following PMS canister mounted probes</i>		
PMS FSSP-300	large aerosol 0.3-20 um	EC
PMS FSSP-002	small particle spectrum (3-45 um)	EC
PMS 2DC-grey	grey-scale images of cloud particles, nominally 15-960 um	EC
DMT CIP	imaging of cloud particles, nominally 15-960 um	EC
Aerosol		
TSI 3775	total particle concentration (> 4 nm)	EC
TSI 7610	total particle concentration (> 11 nm)	EC
PMS PCASP-100X (Passive Cavity Aerosol Spectrometer Probe)	aerosol size distribution (100-3000 nm); external cannister mount	EC
DMT Cloud Condensation Nuclei (CCN) counter	CCN concentration	PNNL
Continuous Flow Diffusion Chamber (CFDC)	IN concentration	Texas A&M
Radiance Particle/Soot Absorption Photometer (PSAP)	mass of black carbon in air	EC
Nephelometer (eg. TSI 3563)	optical scattering	PNNL
DMT Soot Photometer (SP2)	Refractory (black carbon and dust) particle mass distribution	DMT

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Single Particle Laser Ablasion Time of flight mass spectrometer (SPLAT)	Single particle size-resolved composition of aerosol-composition of refractory and non-refractory material	PNNL
Time-Resolved Aerosol Collector (TRAC; two samplers)	time-resolved aerosol collection 0.1-7um	PNNL
Additional instrumentation possibly to be contributed by EC:		
Photo-acoustic Spectrometer	aerosol absorption	Los Alamos
Aerosol Sample Collection		
aerosol inlet	Most of the aerosol samplers require an external inlet. The CVI preferentially collects large particles for analysis of activated cloud nuclei.	EC
pump for aerosol flow	Maintains flow through aerosol inlet and internal plumbing. Could be replaced by venturi system.	EC
Counter-flow Virtual Impactor (CVI)	separation of residual aerosol	EC
PCASP-100X or DMT Ultra-High Sensitivity Aerosol Spectrometer (UHSAS)	measurement of aerosol behind CVI counterflow	EC
Radiometers		
Heitronics KT19.85 Infrared Thermometer (IRT)	Cloud emissivity; Nadir view; Narrow field of view	EC
Broadband visible radiometers	Broadband hemispheric visible radiation, zenith and nadir view, 305-2800 nm	EC
Broadband Pyrgeometers (Epply 3.5-50 um)	Broadband hemispheric infrared fluxes, zenith and nadir view	EC
ProSensing up looking G-band radiometer	multichannel centered on 183.31 GHZ; derived parameters water vapour and liquid water paths above aircraft	NRC
Other Remote Sensing		
Ka-band up and down-looking radar	radar cross sections (reflectivity only)	EC
NAWX radar, dual polarization, dopplerized, up/down/side looking	radar cross sections, and side-looking reflectivity/doppler fields	NRC