SIOS Core Data	SIOS core data definition, as proposed during the workshop (units between brackets)
SCD 1.14. CARBON DI-OXIDE	The chemical formula of carbon dioxide is CO2. Long-term observation of CO2 in the atmosphere is part of the global network of GHG monitoring (mole fraction).
SCD 1.15. NITROGEN DI-OXIDE	Nitrogen dioxide chemical formula is NO2. NO2 is member of a group of highly reactive gases known as oxides of nitrogen or nitrogen oxides (NOx). NO2 contributes to nitrification and is important of the nitrogen biogeo-chemical cycle (mole fraction).
SCD 1.16. TROPO-SPHERCI OZONE	Ozone chemical formula is O3. Ozone is an important contributor to atmos-pheric oxidation capacity and it is also a GHG (mole fraction).

STRATO-SPHERIC OZONE	Dry air mole fraction of O_3 in the stratosphere (mole fraction).
SCD 1.x. TOTAL COL-UMN OZONE	Molecules of O_3 in the atmosphere from surface to TOA (Dobson units).
SCD 1.17. METHANE	Methane formula is CH4. CH4 is an important greenhouse gas (mole fraction).
SCD 1.18. AEROSOL OP-TICAL DEPTH/THICK-NESS	The AOD is the spectral dependent aerosol extinction coefficient integrated over the vertical column (dimensionless).
SCD 1.19. AEROSOL PARTICLE PROPERTIES	We propose to specify them as follows:

Particle number size distribution -mobility diameter	Particle number size distribution of the submicrometer size range from approximately 0.010 to 0.8 µm using a mobility particle size spectrometer (MPSS).
Particle number size distribution – optical and aerodynamic diameter	Particle number size distribution of particles in the upper accumulation and in the coarse mode range measured either by an optical particle size spectrometer (OPSS) based on the intensity of particle light scattering (optical diameter) or by an aerodynamic particle size spectrometer (APSS) based on time-of-flight in an accelerated flow (aerodynamic diameter).
Particle number concentration	The number concentration of particles larger than 10 nm.
Number concentration of cloud condensation nuclei	The number concentration of particles able to form cloud droplets at a given supersaturation.

Nanoparticle number con-centration	The number concentration of particles with a diameter smaller than 10 nm.
Nanoparticle number size distribution	The number size distribution of charged and neutral particles smaller than 20 nm. They are critical for aerosol new particle formation.
Particle mass concentration PM10 and/or PM2.5	The mass concentration of aerosol particles with an aerodynamic diameter smaller than 2.5 um (PM2.5) and smaller than 10 um (PM10) (mass per unit of volume)
SCD 1.20. AEROSOL PARTICLE CHEMICAL COMPOSI-TION	We propose to specify them as follows:

Mass concentration of particulate organic & elemental carbon.	Mass concentration of organic carbon (OC) and elemental carbon (EC) in particulate phase determined by thermal-optical analysis (mass per unit of volume)
Mass concentration of particulate elements.	Elemental composition of atmospheric particles (mass per unit of volume).
Mass concentration of particulate organic tracers.	Concentration of organic tracers, namely different organic compounds that can trace aerosol sources and atmospheric processes (mass per unit of volume).
Mass concentration of	Concentrations of particulate sulphate, nitrate, ammonium, chloride, and non-refractory organic mass measured on-line and simultaneously (mass per unit of volume).

non-refrac-tory particu-late organics and inorgan-ics.	
Mass of major ions in PM10 or PM2.5.	Mass concentration of sulfate, nitrate, chloride, sodium, ammonium, potas-sium ion, magnesium ion, and calcium ion in aerosol particles (mass per unit of volume).
SCD 1.21. CO2, FLUX	Amount of CO2 passing through a surface in the unit of time. It allows the study of processes taking place in the atmosphere and at the atmos-phere/ground interface (mole fraction per surface and time unit).
SCD 1.22. CH4, FLUX	Amount of CH4 passing through a surface in the unit of time. It allows the study of processes taking place in the atmosphere and at the atmosphere/ground interface (mole fraction per surface and time unit).
SCD 1.23. AEROSOL PARTICLE AB-SORPTION	Absorption of light by aerosol particles, which is used to derive equivalent black carbon concentration. It is measured to calculate single scattering al-bedo (reciprocal of length).

SCD 1.24. AEROSOL PARTICLE SCATTERING	Scattering of light by aerosol particles. It is measured to calculate single scattering albedo (reciprocal of length).
CANDIDATES (not necessarily already implemented in Svalbard as long-term measurements, but relevant for climate).	
AEROSOL PRECURSORS	Atmospheric concentration of gas phase species acting as precursors of secondary aerosol including DMS, SO2, H2SO4, MSA (in the gaseous phase), NH3, iodine compounds, etc.
refractory BC	The carbon mass derived from laser induced incandescence (LII) (mass per unit of volume).