SIOS Core Data	SIOS core data definition TBD during the workshop	GCOS hierarchical structure Domain / Subdomain / Observed Variables	GCMD hierarchical structure *Term / Variable_Level_1 / Variable_Level_2*	GCOS Definition	GCMD Definition
SCD 4.1. SEA SURFACE HEIGHT	Who provides to SIOS? (AWI) and from what data? Tides = sea level in long-term?	OCEAN / PHYSICAL / REGIONAL MEAN SEA LEVEL	SEA SURFACE TOPOGRAPHY / SEA SURFACE HEIGHT /	The height of the ocean surface relative to a reference geoid or an agreed regional datum	The height of the ocean surface above a datum, such as a vertical datum for sea level measurements, or a reference ellipsoid for satellite altimetric measurements
SCD 4.2. SEA LEVEL RISE	Who provides to SIOS? and from what data? If no one - why is it a SCD? Simply SEALEVEL - not RISE?	OCEAN / PHYSICAL / GLOBAL MEAN SEA LEVEL	COASTAL PROCESSES / SEA LEVEL RISE /	The height of the ocean surface relative to a reference geoid.	An increase in the average height of the sea surface over a vertical datum.
SCD 4.3. OCEAN CURRENTS	Measurement of the flow of water at the surface or any stated depth level (m/s)	OCEAN / PHYSICAL / SURFACE GEOSTROPHIC CURRENT	OCEAN CIRCULATION / OCEAN CURRENTS /	Ocean Vector motion measured at or near the surface (at stated depth) Actually divided into surface and subsurface currents in GCOS ECVs	Horizontal flow of water in an established, defined pattern.
SCD 4.4. SEA SURFACE TEMPERATURE	Who provides to SIOS?	OCEAN / PHYSICAL / SEA SURFACE TEMPERATURE	OCEAN TEMPERATURE / SEA SURFACE TEMPERATURE /	Radiative skin sea surface temperature, or Bulk sea surface temperature at Stated depth	A measure of the average kinetic energy of the vibration of water molecules, measured or estimated at the sea surface.
SCD 4.5. SALINITY	=subsurface salinity, this is what is typically measured with CTD or in mooring (PSU). https://gcos.wmo.int/en/essential-climate-variables/subsurface-salinity	OCEAN / PHYSICAL / SEA SURFACE SALINITY	SALINITY/DENSITY / SALINITY /	Salinity of seawater, at or near the surface - Salinity is unitless, and is expressed with the suffix psu (practical salinity unit, PSS-78).	The total amount of dissolved material in water and its effect on water's mass-to-volume ratio. Scientific measurements related to either salinity or density are included under this Term.
SCD 4.6. OCEAN HEAT BUDGET	NO one is providing this in the other table, why is it then a SCD - rather replace with temperature (subsurface)? That is what is measured directly and provided with CTD data by anyone providing salinity. https://gcos.wmo.int/en/essential-climate-variables/subsurface-temperature	GCOS | WMOOCEAN / PHYSICAL / RADIATIVE HEAT FLUX	OCEAN HEAT BUDGET / /	The heat exchanged between the ocean and atmosphere resulting from the balance between radiation leaving the sea surface (reflected and emitted) and radiation passing through the sea surface into the ocean; often divided into an infrared or longwave and a visible or shortwave component.	Study of the heat energy gains and losses of the oceans, on global or regional scales. Variables include the terms in the heat budget equation.

SCD 4.7. SEA STATE	Hs, Ts	OCEAN / PHYSICAL / WAVE HEIGHT	OCEAN WAVES / SEA STATE /	The distance between the trough of the wave and the adjacent crest of the wave. The significant wave height is the mean wave height (trough to crest) of the highest third of the waves in a wave spectrum	A measure of the roughness of the sea surface; a scale of surface wave conditions related to the speed of wind.
SCD 4.8. WATER TEMPERATURE	rename => **Subsurface temperature,** should be specified since surface T is already specified above (°C) https://gcos.wmo.int/en/essential-climate-variables/subsurface-temperature	OCEAN / PHYSICAL / INTERIOR TEMPERATURE	OCEAN TEMPERATURE / WATER TEMPERATURE /	Seawater temperature measured with depth (degrees Celsius/Kelvin)	
SCD 4.9. CHLOROPHYLL CONCENTRATIONS	Concentration of chlorophyll-a pigment at a specific water depth [µg L-1] (extraction)	OCEAN / BIOGEOCHEMICAL / CHLOROPHYLL-A CONCENTRATION	OCEAN CHEMISTRY / CHLOROPHYLL / CHLOROPHYLL CONCENTRATIONS	Concentration of chlorophyll-a pigment in the surface water [µg l-1]	
SCD 4.10. new suggestions					
CHLOROPHYLL-FLUORESCENCE	Fluorescence-derived concentration of chlorophyll-a pigment at a specific water depth [µg L-1] (sensor)	OCEAN / BIOGEOCHEMICAL / CHLOROPHYLL-A CONCENTRATION	OCEAN CHEMISTRY / CHLOROPHYLL / CHLOROPHYLL CONCENTRATIONS		
Tides (IGF)	Tides amplitude - daily water level changes		EARTH SCIENCE / OCEANS /TIDES EARTH SCIENCE /OCEANS / COASTAL PROCESSES / TIDAL HEIGHT		
Oxygen concentration (IO PAN, IGF)	Dissolved oxygen concentration measured with depth (ml/l) https://gcos.wmo.int/en/essential-climate-variables/oxygen May be measured in many units: concentration or % - all valid		EARTH SCIENCE / OCEANS / OCEAN CHEMISTRY / OXYGEN		
Inorganic nitrate concentration (UNIS)	After discussion with Biologists at UNIS, either the GCOS or GCMD definitions encompass what we are measuring. Probably something like [µmol L-1] Measurement protocol: watersamples collected with Niskin	OCEAN / BIOGEOCHEMICAL / NUTRIENTS	EARTH SCIENCE / OCEANS / OCEAN CHEMISTRY / NUTRIENT	Interior ocean concentration of silicate, phosphate, nitrate	A charged molecule composed of one atom of nitrogen and three atoms of oxygen, NO3-, available to plants and phytoplankton as a nutrient.
Inorganic nitrite concentration (UNIS)					A charged molecule composed of one atom of nitrogen and two atoms of oxygen, NO2-, available to plants and phytoplankton as a nutrient.

	bottle from various depths, frozen, measurement using Seal Quattro nutrient analyzer				
Inorganic phosphate concentration (UNIS)					A charged molecule composed of one atom of phosphorus and four atoms of oxygen, PO4(-3), available to plants and phytoplankton as a nutrient.
Inorganic silicate concentration (UNIS)					A charged molecule composed of atoms of silicon and oxygen, available to plants and phytoplankton as a nutrient.
Suspended Particulate Matter (SPM) with Particulate Organic Matter (POM) and Inorganic Matter (PIM) (IGF)	SPM concentration at specific water depths (mg/l) filtered from water samples. POM and PIM calculated from loss on ignition (LOI) in 550 C		EARTH SCIENCE / OCEANS / MARINE SEDIMENTS / SUSPENDED SOLIDS		
Water Turbidity (IGF)	SPM concentration measured with Turbidity Sensor (FTU)		EARTH SCIENCE / OCEANS / MARINE SEDIMENTS / TURBIDITY		
Photosynthetically active radiation (UNIS)	Measured with HOBO PAR sensor (for SIOS any PAR sensor data would be acceptable?).. In water at depth?? (Unit=µmol photons m^{-2} s^{-1} ? I will need to find more about this as I am not involved in this myself (LM - UNIS) UiT: Downwelling irradiance for frequencies relevant to photosynthesis (from 400 to 700 nm). Measured in energy (Wm-2) or in quanta µmol of photons m-2 s-1.		EARTH SCIENCE / OCEANS / OCEAN OPTICS / PHOTOSYNTHETICALLY ACTIVE RADIATION		Photosynthetically Active Radiation is the light in the whole wavelength band from 400 nm (deep violet) to 700 nm (dark red) used by plants in photosynthesis
Sediment Flux with POM and PIM (IGF)	The sediment flux (kg/m2 per day) from sediment traps exposed for at least 12/24 hours (one tide cycle) at various depths and above the		EARTH SCIENCE / OCEANS / MARINE SEDIMENTS / PARTICLE FLUX		

	bottom with POM and PIM part calculated from LOI				