CCMVal-2 data request in support of the upcoming 2010 WMO/UNEP Ozone Assessment Chapter 3. Future Ozone and its Impact on Surface UV

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This data request is for files that are needed from the CCMVal-2 sensitivity simulations that are proposed in addition to the CCMVal-2 reference simulations (REF-B1 and REF-B2) to support the upcoming **2010 WMO/UNEP Ozone Assessment**, in particular **Chapter 3. Future Ozone and its Impact on Surface UV**. These sensitivity simulations will be analyzed in Chapter 3 in addition to the REF-B2 simulations. They are in order of importance for Chapter 3 (see also Table 1):

- **SCN-B2b (1960-2100, REF-B2 with halogens fixed at 1960 levels)** is a transient simulation similar to REF-B2, but with **halogens fixed at 1960 levels** throughout the simulation, whereas GHGs and SSTs/SICs are the same as in REF-B2. It is designed to address the science question of what are the effects of halogens on stratospheric ozone and climate, in the presence of climate change. By comparing SCN-B2b with REF-B2, the impact of halogens can be identified and it can be assessed at what point in the future the halogen impact is undetectable, i.e. within climate variability. This was the definition of full recovery of stratospheric ozone from the effects of ODSs that was advanced in *WMO* [2007].
- **SCN-B2c (1960-2100, REF-B2 with GHGs fixed at 1960 levels)** is a transient simulation similar to REF-B2, but with **GHGs fixed at 1960 levels** throughout the simulation, whereas the adjusted scenario A1 halogens are the same as in REF-B2. It is designed to address the science question of how nonlinear are the atmospheric responses to ozone depletion/recovery and climate change. To that end, GHGs are fixed at 1960 levels throughout the simulation. SSTs/SICs will be a 1955-1964 average of the values used in REF-B2. In this simulation, don't allow your halogens to feedback on radiation. By comparing the sum of SCN-B2b and SCN-B2c (each relative to the 1960 baseline) with REF-B2, the nonlinearity of the responses can be assessed. SCN-B2c also addresses the policy-relevant (if academic) question of what would be the impact of halogens on the atmosphere in the absence of climate change.
- **SCN-B2a-SRESB1 (2000-2100, REF-B2 with GHG scenario different than SRES A1B)** is a transient simulation similar to REF-B2, but with the GHG scenario changed from SRES A1B (medium) to the **SRES B1 GHG scenario**. The motivation is to assess the future evolution of the ozone-climate change under a different GHG scenario than the A1B scenario used in REF-B2.
- **SCN-B2a-RCP2.6 (1960-2100, REF-B2 with GHG scenario different than SRES A1B)** is a transient simulation similar to REF-B2, but with the GHG scenario changed from SRES A1B (medium) to the **new IPCC RCP 2.6 GHG emission scenario**. Accordingly, if the model does not include an interactive ocean, SSTs and SICs are prescribed from an AOGCM simulation that is consistent with the GHGs scenario. SCN-B2a-RCP2.6 is designed to be consistent with the lowest of the new coordinated Climate Change Stabilization Experiments proposed for AOGCMs and ESMs as part of CMIP5.The motivation is to assess the future evolution of the ozone-climate change under a different GHG scenario than the SRES A1B scenario used in REF-B2.
- **SCN-B2e (REF-B2 with enhanced Bry):** An additional simulation is being developed to represent the known lower stratospheric deficit in

modeled inorganic bromine abundance. This simulation will be identical to REF-B2, with the exception of including source gases abundances that will increase the stratospheric burden of Br_y. Details of this simulation will be made available shortly on the CCMVal website.

- **SCN-B2a-SRESA2 (2000-2100, REF-B2 with GHG scenario different than SRES A1B)** is a transient simulation similar to REF-B2, but with the GHG scenario changed from SRES A1B (medium) to the **SRES A2 GHG scenario**. The motivation is to assess the future evolution of the ozone-climate change under a different GHG scenario than the SRES A1B scenario used in REF-B2.
- **SCN-B2a-RCP8.5 (1960-2100, REF-B2 with GHG scenario different than SRES A1B)** is a transient simulation similar to REF-B2, but with the GHG scenario changed from SRES A1B (medium) to the **new IPCC RCP 8.5 GHG emission scenario**. Accordingly, if the model does not include an interactive ocean, SSTs and SICs are prescribed from an AOGCM simulation that is consistent with the GHGs scenario. SCN-B2a-RCP8.5 is designed to be consistent with the highest of the new coordinated Climate Change Stabilization Experiments proposed for AOGCMs and ESMs as part of CMIP5.The motivation is to assess the future evolution of the ozone-climate change under a different GHG scenario than the SRES A1B scenario used in REF-B2.
- **SCN-B2f (1960-2100, REF-B2 with halogens following the World Avoided Scenario)** is a transient simulation similar to REF-B2, but with **halogens following the world avoided scenario** throughout the simulation, whereas GHGs and SSTs/SICs are the same as in REF-B2 (download halogen scenario from the CCMVal website at http://www.pa.op.dlr.de/CCMVal/Forcings/CCMVal_Forcings_WMO2010.html).

We encourage all CCMVal-2 model groups to perform a subset of these sensitivity simulations. They are prioritized in Table 1 in order of importance for Chapter 3. **SCN-B2-RCP2.6** and **SCN-B2a-SRESB1** have equal priority. The new IPCC Representative Concentration Pathways (RCPs) sensitivity simulations (see CMIP5 website at https://pcmdi-cmip.llnl.gov/) require a change to a fully new set of emissions and thus mean more work. In addition consistent SSTs and SICs for the RCP simulation are not yet available, which means a delay in the start of the run. For all SRES scenarios, GHG scenario consistent SSTs and SICs can be taken from the WCRP CMIP3 archive from the same AOGCM (see data portal for multi-model output at PCMDI at http://www-pcmdi.llnl.gov/). The **SCN-B2-RCP2.6(8.5)** simulations have the advantage that they are consistent with the new IPCC RCPs, whereas the SRES based SCN-B2a runs are easier to implement and can be started right now since SSTs/SICs are available. It will depend on the priority of the group whether they run an SRES or RCP based GHG sensitivity simulation. SRES and RCP simulations are equally valuable to assess the sensitivity of ozone recovery to GHGs.

From such a rich set of sensitivity simulations there are likely to be a number of papers (both single and multi-model papers) that can and should be written. Should it be of additional value we plan to write an ‘overview paper’ with all model PIs being coauthors that will compare the REF-B2 and sensitivity simulations (see abstract No 68 at http://www.pa.op.dlr.de/CCMVal/List_CCMValCollaborators.html). If you have proposals for companion papers, please let us know. As usual all available literature on the topic that is accepted in time (i.e. end of July 2010) will be assessed in Chapter 3.

Data from the sensitivity runs that are submitted to BADC **before 31 December 2009** are guaranteed to be included in an overview paper and in Chapter 3 of the assessment.

Table 1: Summary of proposed CCMVal-2 sensitivity simulations in support of the WMO/UNEP Ozone Assessment Chapter 3.

Priority for WMO/UNEP 2010 Chapter 3	Scenario	Period	GHGs	ODSs	SSTs/SICs	Background & Volcanic Aerosol	Solar Variability	QBO	Ozone and Aerosol Precursors
1	SCN-B2b Fixed Halogens	1960-2100	Same as in REF-B2	Fixed halogen scenario	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2
2	SCN-B2c NCC	1960-2100	Fixed GHG	Same as in REF-B2	1955-1964 average of values used in REF-B2, repeating each year	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2
3a	SCN-B2a-SRESB1	2000-2100 (or start 1960 if SSTs in the past are different)	SRES B1 GHG scenario	Same as in REF-B2	SSTs/SICs distribution consistent with SRES B1	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Consistent with SRES B1 GHG scenario
3b	SCN-B2a-RCP2.6	1960-2100	IPCC Emission Database RCP 2.6 GHG scenario	Same as in REF-B2	SSTs/SICs distribution consistent with RCP 2.6 GHG scenario	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Consistent with RCP 2.6 GHG scenario
4	SCN-B2e Enhanced Bromine	1960-2100	Same as in REF-B2	Enhanced bromine	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2
5a	SCN-B2a-SRESA2	2000-2100 (or start 1960 if SSTs in the past are different)	SRES A2 GHG scenario	Same as in REF-B2	SSTs/SICs distribution consistent with SRES B1	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Consistent with SRES A2 GHG scenario
5b	SCN-B2a-RCP8.5	1960-2100	IPCC Emission Database RCP 8.5 GHG scenario	Same as in REF-B2	SSTs/SICs distribution consistent with RCP 8.5 GHG scenario	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Consistent with RCP 8.5 GHG scenario
6	SCN-B2f World Avoided	1960-2100	Same as in REF-B2	Halogen world avoided scenario	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2	Same as in REF-B2

Requested Output for CCMVal-2 Sensitivity Simulations

The output of all model runs will be collected in Climate and Forecast (CF) standard compliant netCDF format. Please follow standard CCMVal CF compliant netCDF formats for the model output, pressure levels etc as described in http://www.pa.op.dlr.de/CCMVal/DataRequests/CCMVal-2_Datarequest_FINAL.pdf. The output will be collected at the BADC CCMVal-2 archive. This additional data request below is only for the sensitivity runs listed in Table 1 and is reduced compared to the original CCMVal-2 data request for the reference simulations.

Table 2. 2nd CCMVal-2 Data Request in support of WMO/UNEP 2010. For the additional CCMVal-2 sensitivity simulations a significantly reduced data request than the CCMVal-2 data request in support of the SPARC CCMVal report is defined in the table below. This data request includes only monthly means except for the fields marked yellow; and does not include any daily 3D fields. These data will be needed and analyzed as part of Chapter 3 of the WMO/UNEP 2010 Assessment Report and we encourage all groups to submit all of these requested data for all sensitivity runs they provide. The output will be collected at BADC. Please submit your results to the appropriate directories (/project_spaces/ccmval/CCMVal-2/SCN-B2b; /SCN-B2c; /SCN-B2e etc). For specifications of formats and file names, see the CCMVal-2 data request in support of the SPARC CCMVal Report at http://www.pa.op.dlr.de/CCMVal/DataRequests/CCMVal-2_Datarequest_FINAL.pdf. We recommend to keep the same output stream that you had for the REF-B2 simulation in case of follow up studies by individual coworkers, but to only put the data requested below from the sensitivity studies to the BADC as soon as the run is finished.

	CF standard name	Long_name	Output variable name*	Units	Output Fields	Notes
	air_temperature		ta	K	**T2Mz**	
	ertel_potential_vorticity		vorpot480	K m^2 kg^{-1} s^{-1}	**T2Is or T2Ds**	to calculate equivalent latitudes
	geopotential_height		zg	m	**T2Mz**	
	eastward_wind		ua480	m s^{-1}	**T2Is or T2Ds**	eastward wind at 480 K (lat/lon) to calculate equivalent latitudes
	northward_wind		va480	m s^{-1}	**T2Is or T2Ds**	northward wind at 480 K (lat/lon) to calculate equivalent latitudes
	surface_air_pressure		ps	Pa	**T2Ms**	surface pressure (not mean sea-level pressure)
	sea_surface_temperature		tos	K	**TO2Ms**	this may differ from "surface temperature" in regions of sea ice.
	sea_ice_area_fraction		sic	%	**TO2Ms**	fraction of grid cell covered by sea ice.
	tropopause_air_pressure		ptp	Pa	**T2Ms**	2D monthly mean thermal tropopause calculated using WMO tropopause definition on 3d temperature
	tropopause_air_temperature		tatp	K	**T2Ms**	2D monthly mean thermal tropopause calculated using WMO tropopause definition on 3d temperature
	tropopause_altitude		ztp	Pa	**T2Ms**	2D monthly mean thermal tropopause calculated using WMO tropopause definition on 3d temperature
	equivalent_thickness_at_stp_of_atmosphere_ozone_content		toz	DU	**T2Ms, T2Is or T2Ds**	total ozone column in DU
	surface_downwelling_shortwave_flux_in_air		rsds	W m^{-2}	**T2Is and T2Ds**	surface solar irradiance for UV calculations
	surface_downwelling_shortwave_flux_in_air_assuming_clear_sky		rsdscs	W m^{-2}	**T2Is and T2Ds**	surface solar irradiance clear sky for UV calculations
	surface_snow_thickness		snd	m	**T2Is or T2Ds**	snow depth
	mole_fraction_of_ozone_in_air		O3	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_nitrous_oxide_in_air		N2O	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_methane_in_air		CH4	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_hydrogen_chloride_in_air		HCl	mole $mole^{-1}$	**T2Mz**	

	mole_fraction_of_water_vapor_in_air		H2O	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc11_in_air		CFCl3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc12_in_air		CF2Cl2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_methyl_chloride_in_air		CH3Cl	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_methyl_bromide_in_air		CH3Br	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_methylene_bromide_in_air		CH2Br2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_ bromoform_in_air		CHBr3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc113_in_air		CCl2FCClF2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc113a_in_air		CCl3CF3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc114_in_air		CClF2CClF2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_cfc115_in_air		CClF2CCF3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_carbon_tetrachloride_in_air		CCl4	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_halon1301_in_air		CBrF3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_halon1211_in_air		CBrClF2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_halon2402_in_air		C2Br2F4	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_halon1201_in_air		CBr2F2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_atomic_chlorine_in_air		Cl	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_chlorine monoxide_in_air		ClO	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_dichlorine peroxide_in_air		Cl2O2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_hypochlorous acid_in_air		HOCl	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_chlorine_nitrate_in_air		ClONO2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_chlorine dioxide_in_air		OClO	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_inorganic_chlorine_in_air		Cly	mole mole^{-1}	**T2Mz**	Total family (the sum of all appropriate species in the model) ; list the species in the netCDF header, e.g. Cly = HCl + ClONO2 + HOCl + ClO + Cl + 2*Cl2O2 +2Cl2 + OClO + BrCl Definition: Total inorganic stratospheric chlorine (e.g., HCl, ClO) resulting from degradation of chlorine-containing source gases (CFCs, HCFCs, VSLS), and natural inorganic chlorine sources (e.g., sea salt and other aerosols)
	mole_fraction_of_hydroxyl_radical_in_air		OH	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_hydroperoxyl_radical_in_air		HO2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_hydrogen_peroxide_in_air		H2O2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_molecular_hydrogen_in_air		H2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_nitrogen_monoxide_in_air		NO	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_nitrogen_dioxide_in_air		NO2	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_nitric_acid_in_air		HNO3	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_dinitrogen_pentoxide_in_air		N2O5	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_peroxynitric_acid_in_air		HNO4	mole mole^{-1}	**T2Mz**	
	mole_fraction_of_total_reactive_nitrogen_in_air		NOy	mole mole^{-1}	**T2Mz**	Total family (the sum of all appropriate species in the model); list the species in the netCDF header, e.g. NOy = N + NO + NO2 + NO3 + HNO3 + 2N2O5 +

						HNO4 + ClONO2 + BrONO2 Definition: Total reactive nitrogen; usually includes atomic nitrogen (N), nitric oxide (NO), NO2, nitrogen trioxide (NO3), dinitrogen radical (N2O5), nitric acid (HNO3), peroxynitric acid (HNO4), BrONO2, ClONO2
	mole_fraction_of_atomic_bromine_in_air		Br	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_bromine_monoxide_in_air		BrO	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_bromine_chloride_in_air		BrCl	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_hydrogen_bromide_in_air		HBr	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_hypobromous_acid_in_air		HOBr	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_bromine nitrate_in_air		BrONO2	mole $mole^{-1}$	**T2Mz**	
	mole_fraction_of_total_inorganic_bromine_in_air		Bry	mole $mole^{-1}$	**T2Mz**	Total family (the sum of all appropriate species in the model) ; list the species in the netCDF header, e.g. Bry = Br + BrO + HOBr + HBr + BrONO2 + BrCl Definition: Total inorganic bromine (e.g., HBr and inorganic bromine oxides and radicals (e.g., BrO, atomic bromine (Br), bromine nitrate (BrONO2)) resulting from degradation of bromine-containing organicsource gases (halons, methyl bromide, VSLS), and natural inorganic bromine sources (e.g., volcanoes, sea salt, and other aerosols)
	mole_fraction_of_carbon_dioxide_in_air		CO2	mole $mole^{-1}$	**T2Mz**	
	age_of_stratospheric_air		mean_age	years	**T2Mz**	The mean age of air is defined as the mean time that a stratospheric air mass has been out of contact with the well-mixed troposphere.
	northward_heat_flux_in_air_due_to_eddy_advection		vt100	MKS	**T1Ms**	Zonally averaged meridional heat flux at 100 hPa as monthly means derived from daily (or higher frequency) fields.
	northward_eliassen_palm_flux_in_air		fy	MKS	**T2Mz**	*Transformed Eulerian Mean Diagnostics* Meridional component *Fy* of **EP-flux (*Fy, Fz*)** derived from 6hr or higher frequency fields (use daily fields or 12 hr fields if the 6 hr are not available). Please use the definitions given by **equation 3.5.3a** of Andrews, Holton and Leovy text book.
	upward_eliassen_palm_flux_in_air		fz	MKS	**T2Mz**	*Transformed Eulerian Mean Diagnostics* Vertical component *Fz* of **EP-flux (*Fy, Fz*)** derived from 6hr or higher frequency fields (use daily fields or 12 hr fields if the 6 hr are not available). Please use the definitions given by **equation 3.5.3b** of Andrews, Holton and Leovy text book.
	tendency_of_eastward_wind_due_to_eliassen_palm_flux_divergence		accel_divf	MKS	**T2Mz**	*Transformed Eulerian Mean Diagnostics* **Acceleration from the EP-flux divergence (D)** derived from 6hr or higher frequency fields (use daily fields or 12 hr fields if the 6 hr data are not available). Please use the definitions given by the right hand side

						of **equation 3.5.2a** of Andrews, Holton and Leovy text book .
	northward_transformed_eulerian_mean_air_velocity		vstar	MKS	**T2Mz**	*Transformed Eulerian Mean Diagnostics* *v**, meridional component of the **residual meridional circulation *(v*, w*)*** derived from 6 hr or higher frequency data fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available).
	upward_transformed_eulerian_mean_air_velocity		wstar	MKS	**T2Mz**	*Transformed Eulerian Mean Diagnostics* *w**, vertical component of the **residual meridional circulation *(v*, w*)*** derived from 6 hr or higher frequency data fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available). Scale height: 6950 m
	tendency_of_eastward_wind_due_to_gravity_wave_drag		accel_gw	MKS	**T2Mz**	**Eastward acceleration from the total (orographic + non-orographic) parameterized gravity wave drag (GWD)** derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available). Use the accelerations as applied in your model.
	tendency_of_eastward_wind_due_to_orographic_gravity_wave_drag		accel_ogw	MKS	**T2Mz**	**Eastward acceleration from the parameterized orographic gravity wave drag (OGWD)** derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available). Use the accelerations as applied in your model.
	upward_eastward_momentum_flux_in_air_due_to_orographic_gravity_waves		ogw_flux	MKS	**T2Mz**	**Zonal orographic gravity wave stress (momentum flux), including any flux out of the top of the model** (e.g., add additional level to the output file for model top. Set flux at this level to zero if nothing escapes to outer space in your model), derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available).
	tendency_of_eastward_wind_due_to_nonorographic_gravity_wave_drag		accel_nogw	MKS	**T2Mz**	**Eastward acceleration from the parameterized non-orographic gravity wave drag (NOGWD)** derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available). Use the accelerations as applied in your model.
	upward_eastward_momentum_flux_in_air_due_to_nonorographic_eastward_gravity_waves		nogw_w_flux	MKS	**T2Mz**	**Westward component of the zonal non-orographic gravity wave momentum flux**, including any flux out of the top of the model (e.g., add additional level to the output file for model top. Set flux at this level to zero if nothing escapes to outer space in your model), derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available).
	upward_eastward_momentum_flux_in_air_due_		nogw_e_flux	MKS	**T2Mz**	**Eastward component of the zonal non-orographic gravity wave momentum flux**, including any flux out

	to_nonorographic_westward_gravity_waves					of the top of the model (e.g., add additional level to the output file for model top. Set flux at this level to zero if nothing escapes to outer space in your model), derived either from daily means or 6hr fields (use instantaneous daily fields or 12 hr fields if the 6 hr data are not available).
	tendency_of_eastward_wind_due_to_numerical_artefacts		diab_drag	MKS	**T2Mz**	**Other sub-grid scale/numerical zonal drag excluding that already provided for the parameterized orographic and non-ororgraphic gravity waves.** This would be used to calculate the total "diabatic drag." Contributions to this additional drag such Rayleigh friction and diffusion that can be calculated from the monthly mean wind fields should not be included, but details (e.g. coefficients) of the friction and/or diffusion used in the model should be provided separately.
		arctic_area_integral_of_polar_stratospheric_cloud_area_fraction	psca_nh50	m^2	**T0I**	Daily PSC Area that is calculated by the model's PSC scheme poleward of 60° at 50 hPa for Nov-April in NH
		antarctic_area_integral_of_polar_stratospheric_cloud_area_fraction	psca_sh50	m^2	**T0I**	Daily PSC Area that is calculated by the model's PSC scheme poleward of 60° at 50 hPa for July-Dec in SH
		arctic_area_where_air_temperature_less_than_188K	area188K_nh50	m^2	**T0I**	Daily Area where the Temperature poleward of 60° is below 188 K at 50 hPa for Nov-April in NH
		arctic_area_where_air_temperature_less_than_195K	area195K_nh50	m^2	**T0I**	Daily Area where the Temperature poleward of 60° is below 195 K at 50 hPa for Nov-April in NH
		antarctic_area_where_air_temperature_less_than_188K	area188K_sh50	m^2	**T0I**	Daily Area where the Temperature poleward of 60° is below 188 K at 50 hPa for July-Dec in SH
		antarctic_area_where_air_temperature_less_than_195K	area195K_sh50	m^2	**T0I**	Daily Area where the Temperature poleward of 60° is below 195 K at 50 hPa for July-Dec in SH