

# STATE OF THE CLIMATE IN 2019

## RELEVANT DATASETS AND SOURCES



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## 8. RELEVANT DATASETS AND SOURCES

General Variable or Phenomenon	Specific dataset or variable	Source	Section
<b>Aerosols</b>	CAMS Reanalysis	<a href="https://atmosphere.copernicus.eu/">https://atmosphere.copernicus.eu/</a>	2g3
	GloSSAC v.1.	<a href="https://eosweb.larc.nasa.gov/project/glossac/glossac_v1.1">https://eosweb.larc.nasa.gov/project/glossac/glossac_v1.1</a>	SB2.2
	OMPS/LP	<a href="https://ozoneaq.gsfc.nasa.gov/data/ozone/">https://ozoneaq.gsfc.nasa.gov/data/ozone/</a>	SB2.2
<b>Air-sea fluxes</b>	CERES Energy Balanced and Filled	<a href="https://ceres.larc.nasa.gov/">https://ceres.larc.nasa.gov/</a>	3e4
	CERES FLASHflux	<a href="https://eosweb.larc.nasa.gov/project/ceres/ebaf_surface_table">https://eosweb.larc.nasa.gov/project/ceres/ebaf_surface_table</a>	3e1
	NCEP/DOE AMIP-II	<a href="https://www.cpc.ncep.noaa.gov/products/wesley/reanalysis2/">https://www.cpc.ncep.noaa.gov/products/wesley/reanalysis2/</a>	6g3
	Woods Hole Oceanographic Institute OAFflux	<a href="http://oaf Flux.whoii.edu">http://oaf Flux.whoii.edu</a>	3e1, 3e2, 3e3
<b>Albedo</b>	MODIS	<a href="http://ladsweb.nascom.nasa.gov">http://ladsweb.nascom.nasa.gov</a>	2h1, 5e1
<b>Atmospheric fluxes</b>	MERRA-2	<a href="https://gmaw.gsfc.nasa.gov/reanalysis/MERRA-2/">https://gmaw.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	SB6.1
<b>Biomass, Greenness or Burning</b>	GFAS v1.4	<a href="ftp://ftp.mpic.de/GFAS/sc17">ftp://ftp.mpic.de/GFAS/sc17</a>	2h3
	Global Inventory Modeling and Mapping Studies (GIMMS) 3gv1	<a href="https://nex.nasa.gov/nex/projects/1349/">https://nex.nasa.gov/nex/projects/1349/</a>	5i
<b>Cloud Properties</b>	Aqua MODIS C6	<a href="https://earthdata.nasa.gov/earth-observation-data/near-real-time/download-nrt-data/modis-nrt">https://earthdata.nasa.gov/earth-observation-data/near-real-time/download-nrt-data/modis-nrt</a>	2d7
	CALIPSO	<a href="https://eosweb.larc.nasa.gov/project/calipso/calipso_table">https://eosweb.larc.nasa.gov/project/calipso/calipso_table</a>	2d7, 6h
	CERES MODIS	<a href="https://ceres.larc.nasa.gov/science_information.php?page=ModisCloudRetr">https://ceres.larc.nasa.gov/science_information.php?page=ModisCloudRetr</a>	2d7
	CLARA-A2	<a href="https://climatedataguide.ucar.edu/climate-data/clara-a1-cloud-properties-surface-albedo-and-surface-radiation-products-based-avhrr">https://climatedataguide.ucar.edu/climate-data/clara-a1-cloud-properties-surface-albedo-and-surface-radiation-products-based-avhrr</a>	2d7
	CLOUD_CCI	<a href="http://www.esa-cloud-cci.org">www.esa-cloud-cci.org</a>	2d7
	HIRS	<a href="http://www.ssec.wisc.edu/~donw/PAGE/CLIMATE.HTML">www.ssec.wisc.edu/~donw/PAGE/CLIMATE.HTML</a>	2d7
	MISR	<a href="https://l0dup05.larc.nasa.gov/L3Web/">https://l0dup05.larc.nasa.gov/L3Web/</a>	2d7
	PATMOS-x/AVHRR	<a href="http://www.ncdc.noaa.gov/cdr/atmospheric/avhrr-cloud-properties-patmos-x">www.ncdc.noaa.gov/cdr/atmospheric/avhrr-cloud-properties-patmos-x</a>	2d7
	PATMOS-x/MODIS C6	<a href="http://ladsweb.nascom.nasa.gov">http://ladsweb.nascom.nasa.gov</a>	2d7
	SatCORPS	No public archive	2d7
<b>Drought</b>	scPSDI	<a href="https://crudata.uea.ac.uk/cru/data/drought/">https://crudata.uea.ac.uk/cru/data/drought/</a>	2d11
	CRU TS 4.03	<a href="https://crudata.uea.ac.uk/cru/data/hrg/">https://crudata.uea.ac.uk/cru/data/hrg/</a>	2d11
<b>Evaporation, Interception, Transpiration, Sublimation</b>	GLEAM	<a href="http://www.gleam.eu/">www.gleam.eu/</a>	2d12
<b>FAPAR</b>	MERIS	<a href="http://earth.esa.int/level3/meris-level3/">http://earth.esa.int/level3/meris-level3/</a>	2h2
	MODIS-TIP	<a href="http://ladsweb.nascom.nasa.gov/">http://ladsweb.nascom.nasa.gov/</a>	2h2
	SeaWiFS v 2010.0	<a href="http://fapar.jrc.ec.europa.eu/">http://fapar.jrc.ec.europa.eu/</a>	2h2

(cont.) Relevant datasets and sources

General Variable or Phenomenon	Specific dataset or variable	Source	Section
<b>Geopotential Height</b>	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	6b
	NCEP/NCAR Reanalysis 1: Pressure	<a href="http://www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.pressure.html">www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.pressure.html</a>	4f2, 5b2
<b>Glacier Mass, Area or Volume</b>	GRACE / GRACE-FO	<a href="https://gracefo.jpl.nasa.gov/data/grace-data/">https://gracefo.jpl.nasa.gov/data/grace-data/</a>	5e3, 5f
	Sentinel-2, LANDSAT, ASTER	—	5e1
	World Glacier Monitoring Service	<a href="https://wgms.ch/latest-glacier-mass-balance-data/">https://wgms.ch/latest-glacier-mass-balance-data/</a>	2c3, 5f
<b>Groundwater and terrestrial water storage</b>	GRACE / GRACE-FO	<a href="https://gracefo.jpl.nasa.gov/data/grace-data/">https://gracefo.jpl.nasa.gov/data/grace-data/</a>	2d9
<b>Humidity, [Near] Surface</b>	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2d1
	HadISDH	<a href="http://www.metoffice.gov.uk/hadobs/hadisdh">www.metoffice.gov.uk/hadobs/hadisdh</a>	2d1
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	2d1
	MERRA-2	<a href="https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2d1
	NOAA-CIRES-DOE 20th Century Reanalysis v3	<a href="https://psl.noaa.gov/data/gridded/data.20thC_ReanV3.html">https://psl.noaa.gov/data/gridded/data.20thC_ReanV3.html</a>	2d1
	NOCS 2.0	<a href="https://rda.ucar.edu/datasets/ds260.3/">https://rda.ucar.edu/datasets/ds260.3/</a>	2d1
<b>Humidity, Upper Atmosphere</b>	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2d3
	HIRS	<a href="http://www.ncdc.noaa.gov/cdr/fundamental/hirs-ch12-brightness-temperature">www.ncdc.noaa.gov/cdr/fundamental/hirs-ch12-brightness-temperature</a>	2d3
	UTH, Microwave	by email to <a href="mailto:Viju.John@eumetsat.int">Viju.John@eumetsat.int</a>	2d3
<b>Ice Sheet Characteristics</b>	DMSP-SSMIS	<a href="http://nsidc.org/data/nsidc-0032">http://nsidc.org/data/nsidc-0032</a>	5e1, 6d
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	6c
	ICESat, ICESat-2	<a href="https://nsidc.org/data/icesat-2">https://nsidc.org/data/icesat-2</a>	6e
	MERRA-2	<a href="https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	6c
	Modèle Atmosphérique Régionale surface mass	<a href="https://mar.cnrs.fr/">https://mar.cnrs.fr/</a>	5e1
	PROMICE (Greenland)	<a href="http://www.promice.dk/home.html">www.promice.dk/home.html</a>	5e1, 5e2
<b>Lake Ice</b>	—	—	SB2.1
<b>Lake Temperature</b>	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2b2
	Globalakes	<a href="http://www.globalakes.ac.uk">www.globalakes.ac.uk</a>	2b2
	Lake Vättern (Sweden)	Vättern Water Protection Association	2b2
	Lake Zurich (Switzerland)	City of Zurich Water Supply and Amt für Abfall, Wasser, Energie und Luft of the Canton of Zurich	2b2
	MetOp A & B ATSR and AVHRR	<a href="https://www.eumetsat.int/website/home/Satellites/CurrentSatellites/Metop/index.html">https://www.eumetsat.int/website/home/Satellites/CurrentSatellites/Metop/index.html</a>	2b2
	Mondsee (Austria)	<a href="http://hydro.ooe.gv.at/#Startseite">http://hydro.ooe.gv.at/#Startseite</a>	2b2
	Neusiedler See (Austria)	<a href="http://wasser.bgld.gv.at/hydrographie/online-daten.html">http://wasser.bgld.gv.at/hydrographie/online-daten.html</a>	2b2
	Polish Lakes	<a href="http://www.imgw.pl">www.imgw.pl</a>	2b2
	Wörther See (Austria)	<a href="https://info.ktn.gv.at/asp/hydro/daten/hydroportal/see_wt.asp">https://info.ktn.gv.at/asp/hydro/daten/hydroportal/see_wt.asp</a>	2b2
<b>Lake Water Levels</b>	USDA G-REALM	<a href="https://ipad.fas.usda.gov/cropexplorer/global_reservoir/">https://ipad.fas.usda.gov/cropexplorer/global_reservoir/</a>	2d6

General Variable or Phenomenon	Specific dataset or variable	Source	Section
<b>Modes of Variability</b>	Arctic Oscillation (AO)	<a href="http://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/teleconnections.shtml">www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/teleconnections.shtml</a>	2e1
	Indian Ocean Dipole Mode Index	<a href="https://psl.noaa.gov/gcos_wgsp/Timeseries/DMI/">https://psl.noaa.gov/gcos_wgsp/Timeseries/DMI/</a>	4h
	Madden-Julian Oscillation (MJO) - Real-time Multivariate MJO	<a href="http://www.bom.gov.au/climate/mjo/graphics/rmm.74toRealtime.txt">www.bom.gov.au/climate/mjo/graphics/rmm.74toRealtime.txt</a>	4c
	North Atlantic Oscillation (NAO)	<a href="https://climatedataguide.ucar.edu/climate-data/hurrell-north-atlantic-oscillation-nao-index-station-based">https://climatedataguide.ucar.edu/climate-data/hurrell-north-atlantic-oscillation-nao-index-station-based</a>	2e1
	Oceanic Nino Index (ONI)	<a href="http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml">www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml</a>	4b
	Southern Annular Mode (SAM)	<a href="http://www.antarctica.ac.uk/met/gjma/sam.html">www.antarctica.ac.uk/met/gjma/sam.html</a>	6b, SB6.1
	Southern Annular Mode (SAM, AAO)	<a href="http://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/aa0/aa0.shtml">www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/aa0/aa0.shtml</a>	2e1
	Southern Oscillation Index (SOI)	<a href="ftp://ftp.bom.gov.au/anon/home/ncc/www/sco/soi/soiplaintext.html">ftp://ftp.bom.gov.au/anon/home/ncc/www/sco/soi/soiplaintext.html</a>	2e1
<b>Ocean Carbon</b>	MPI-SOM-FFN	<a href="https://www.nodc.noaa.gov/ocads/oceans/SPCO2_1982_2015_ETH_SOM_FF.N.html">https://www.nodc.noaa.gov/ocads/oceans/SPCO2_1982_2015_ETH_SOM_FF.N.html</a>	6g3
	pCO2	<a href="http://www.socat.info">www.socat.info</a>	3i2
	Global Ocean Ship-Based Hydrographic Investigations Program	<a href="http://www.go-ship.org">www.go-ship.org</a>	3i3
<b>Ocean Heat Content</b>	CLIVAR and Carbon Hydrographic Data Office	<a href="https://cchdo.ucsd.edu/">https://cchdo.ucsd.edu/</a>	3c
	CSIRO/ACE CRC/IMAS-UTAS estimate	<a href="http://www.cmar.csiro.au/sealevel/thermal_expansion_ocean_heat_timeseries.html">www.cmar.csiro.au/sealevel/thermal_expansion_ocean_heat_timeseries.html</a>	3c
	IAP/CAS	<a href="https://climatedataguide.ucar.edu/climate-data/ocean-temperature-analysis-and-heat-content-estimate-institute-atmospheric-physics">https://climatedataguide.ucar.edu/climate-data/ocean-temperature-analysis-and-heat-content-estimate-institute-atmospheric-physics</a>	3c
	PMEL/JPL/JIMAR	<a href="http://oceans.pmel.noaa.gov">http://oceans.pmel.noaa.gov</a>	3c
	MRI/JMA	<a href="http://www.data.jma.go.jp/gmd/kaiyou/english/ohc/ohc_global_en.html">www.data.jma.go.jp/gmd/kaiyou/english/ohc/ohc_global_en.html</a>	3c
	NCEI	<a href="http://www.nodc.noaa.gov/OC5/3M_HEAT_CONTENT/">www.nodc.noaa.gov/OC5/3M_HEAT_CONTENT/</a>	3c
	UK Met Office EN4.0.2	<a href="http://www.metoffice.gov.uk/hadobs/en4/download-en4-0-2-109.html">www.metoffice.gov.uk/hadobs/en4/download-en4-0-2-109.html</a>	3c
<b>Ocean Mass</b>	NASA Gravity Recovery and Climate Experiment	<a href="https://grace.jpl.nasa.gov/data/get-data/monthly-mass-grids-ocean/">https://grace.jpl.nasa.gov/data/get-data/monthly-mass-grids-ocean/</a>	3f
<b>Ocean Salinity</b>	Aquarius V3.0	<a href="http://podaac.jpl.nasa.gov/aquarius">http://podaac.jpl.nasa.gov/aquarius</a>	3d2
	Argo	<a href="http://www.argo.ucsd.edu">www.argo.ucsd.edu</a> , <a href="http://argo.jcommops.org">http://argo.jcommops.org</a>	3d2
	Blended Analysis for Surface Salinity	<a href="ftp://ftp.cpc.ncep.noaa.gov/precip/BASS">ftp://ftp.cpc.ncep.noaa.gov/precip/BASS</a>	3d2
	World Ocean Atlas 2013	<a href="http://www.nodc.noaa.gov/OC5/woa13/">www.nodc.noaa.gov/OC5/woa13/</a>	3d2, 3d3
<b>Outgoing Longwave Radiation</b>	AVHRR	<a href="https://www.esrl.noaa.gov/psd/data/gridded/data.interp_OLR.html">https://www.esrl.noaa.gov/psd/data/gridded/data.interp_OLR.html</a>	4d2, 4f2
	Daily OLR	<a href="http://www.ncdc.noaa.gov/cdr/atmospheric/outgoing-longwave-radiation-daily">www.ncdc.noaa.gov/cdr/atmospheric/outgoing-longwave-radiation-daily</a>	4b2, 4b3, 4c, 4f3, 4f5, 4f6

General Variable or Phenomenon	Specific dataset or variable	Source	Section
<b>Ozone, Total Column and Stratospheric</b>	GOME/SCIAMACHY/GOME2 (GSG) Merged Total Ozone	<a href="http://www.iup.uni-bremen.de/gome/wfdoas/">www.iup.uni-bremen.de/gome/wfdoas/</a>	2g4
	GOME/SCIAMACHY/GOME2 (GTO) Merged Total Ozone	<a href="http://www.esa-ozone-cci.org">www.esa-ozone-cci.org</a>	2g4
	GOZCARDS ozone profiles	<a href="https://gozcards.jpl.nasa.gov/info.php">https://gozcards.jpl.nasa.gov/info.php</a>	2g4
	Aura OMI/MLS	<a href="https://disc.sci.gsfc.nasa.gov/Aura/data-holdings/MLS">https://disc.sci.gsfc.nasa.gov/Aura/data-holdings/MLS</a> <a href="ftp://toms.gsfc.nasa.gov/pub/omi/data/ozone/">ftp://toms.gsfc.nasa.gov/pub/omi/data/ozone/</a> (for years 2013-2017) <a href="https://disc.gsfc.nasa.gov/datasets/OMTO3d_003/summary">https://disc.gsfc.nasa.gov/datasets/OMTO3d_003/summary</a> <a href="https://disc.gsfc.nasa.gov/datasets/OMUVBd_003/summary">https://disc.gsfc.nasa.gov/datasets/OMUVBd_003/summary</a>	5j1, 6h
	Multi Sensor Reanalysis (MSR-2) of total ozone	<a href="http://www.temis.nl">www.temis.nl</a>	2g4
	NASA BUV/SBUV v8.6 (MOD v8.6) Merged Ozone	<a href="http://acdb-ext.gsfc.nasa.gov/Data_services/merged">http://acdb-ext.gsfc.nasa.gov/Data_services/merged</a>	2g4
	NOAA BUV/SBUV v8.6 (MOD v8.6) Merged Ozone	<a href="ftp://ftp.cpc.ncep.noaa.gov/SBUV_CDR">ftp://ftp.cpc.ncep.noaa.gov/SBUV_CDR</a>	2g4
	Ozone Mapping & Profiler Suite (OMPS) Ozone sonde	<a href="https://ozoneaq.gsfc.nasa.gov/omps/">https://ozoneaq.gsfc.nasa.gov/omps/</a> <a href="http://www.esrl.noaa.gov/gmd/dv/spo_oz">www.esrl.noaa.gov/gmd/dv/spo_oz</a>	6h 6h
	SAGE II/OSIRIS	dataset linked to Bourassa et al. (2014)	2g4
	SWOOSH	<a href="http://www.esrl.noaa.gov/csd/groups/csd8/swoosh/">www.esrl.noaa.gov/csd/groups/csd8/swoosh/</a>	2g4
WOUDC Ground-based Ozone	<a href="https://woudc.org/archive/Projects-Campaigns/ZonalMeans/">https://woudc.org/archive/Projects-Campaigns/ZonalMeans/</a>	2g4	
<b>Ozone, Tropospheric</b>	Aura OMI/MLS	<a href="http://acd-ext.gsfc.nasa.gov/Data_services/cloud_slice/new_data.html">http://acd-ext.gsfc.nasa.gov/Data_services/cloud_slice/new_data.html</a>	2g6
	NOAA Observatory Data	<a href="ftp://aftp.cmdl.noaa.gov/data/ozwv/SurfaceOzone/">ftp://aftp.cmdl.noaa.gov/data/ozwv/SurfaceOzone/</a>	2g6
<b>Permafrost</b>	Active Layer Thickness	<a href="http://www2.gwu.edu/~calm/">www2.gwu.edu/~calm/</a>	2c1, 5h2
	Global Terrestrial Network for Permafrost (GTN-P)	<a href="http://gtnpdatabase.org/">http://gtnpdatabase.org/</a>	2c1, 5h1
	Permafrost Temperature	<a href="http://permafrost.gi.alaska.edu/sites_map">http://permafrost.gi.alaska.edu/sites_map</a>	5h1
	Permafrost Temperature at Chinese (QTP) sites	<a href="https://nsidc.org/data/GGD700/versions/1">https://nsidc.org/data/GGD700/versions/1</a>	2c1
	Permafrost Temperature at French sites	<a href="http://permafrost.osug.fr">permafrost.osug.fr</a>	2c1
	Permafrost Temperature at Norwegian sites	<a href="http://www.tspnorway.com">www.tspnorway.com</a> <a href="http://www.met.no">www.met.no</a>	2c1
Permafrost Temperature at Swiss sites	<a href="http://www.permos.ch">www.permos.ch</a>	2c1	
<b>Phenology</b>	Budburst Quercus robur	<a href="https://www.usanpn.org/node/22741">https://www.usanpn.org/node/22741</a>	2h4
	Lake chlorophyll	—	2h4
	NDVI	<a href="https://modis.gsfc.nasa.gov/data/dataproduct/mod13.php">https://modis.gsfc.nasa.gov/data/dataproduct/mod13.php</a>	2h4
	PhenoCam	<a href="https://www.neonscience.org/data-collection/phenocams">https://www.neonscience.org/data-collection/phenocams</a>	2h4
<b>Phytoplankton, Ocean Color</b>	MODIS-Aqua R2018.0	<a href="http://oceancolor.gsfc.nasa.gov/cms/reprocessing/">http://oceancolor.gsfc.nasa.gov/cms/reprocessing/</a>	3h
	SeaWiFS R2018.0	<a href="http://oceancolor.gsfc.nasa.gov/cms/reprocessing/">http://oceancolor.gsfc.nasa.gov/cms/reprocessing/</a>	3h

(cont.) Relevant datasets and sources

General Variable or Phenomenon	Specific dataset or variable	Source	Section
Precipitation	Climate Extremes Index	<a href="https://www.ncdc.noaa.gov/extremes/cei/">https://www.ncdc.noaa.gov/extremes/cei/</a>	2d5
	CMORPH	<a href="http://www.cpc.ncep.noaa.gov/products/janowiak/cmorph_description.html">www.cpc.ncep.noaa.gov/products/janowiak/cmorph_description.html</a>	4d1
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2d5
	GHCN v4	<a href="http://www.ncdc.noaa.gov/temp-and-precip/ghcn-gridded-products/precipitation">www.ncdc.noaa.gov/temp-and-precip/ghcn-gridded-products/precipitation</a>	2d4, 2d5
	GHCNDEX	<a href="http://www.climdex.org/datasets.html">www.climdex.org/datasets.html</a>	2d5
	GPCP v2.3	<a href="http://precip.gsfc.nasa.gov">http://precip.gsfc.nasa.gov</a>	2d4, 3e2, 4e, 4h
	GPCP	<a href="http://www.dwd.de/EN/ourservices/gpcc/gpcc.html">www.dwd.de/EN/ourservices/gpcc/gpcc.html</a>	2d4, 2d5
MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2d5	
Precipitation (net), Freshwater Flux	GPCPv23, OAFflux	<a href="http://precip.gsfc.nasa.gov">http://precip.gsfc.nasa.gov</a> <a href="http://oafux.who.edu">http://oafux.who.edu</a>	3e
Pressure, Sea Level or Near-Surface	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	6b
	HadSLP2r	<a href="http://hadobs.metoffice.com/hadslp2/">http://hadobs.metoffice.com/hadslp2/</a>	2e1
	NCEP/NCAR Reanalysis	<a href="http://www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.html">www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.html</a>	4f2
River Discharge	ELSE	No public archive	2d8
Sea Ice Age	EASE-Grid v3	<a href="http://nsidc.org/data/nsidc-0611/">http://nsidc.org/data/nsidc-0611/</a>	5d2
Sea Ice Duration	Near-Real-Time DMSP SSM/I-SSMIS Daily Polar Gridded	<a href="http://nsidc.org/data/nsidc-0081.html">http://nsidc.org/data/nsidc-0081.html</a>	6f
	Nimbus-7 SMMR and DMSP SSM/I (Bootstrap)	<a href="http://nsidc.org/data/nsidc-0079.html">http://nsidc.org/data/nsidc-0079.html</a>	6f
Sea Ice Extent/Area/Concentration	Nimbus-7 SMMR and DMSP SSM/I (Bootstrap)	<a href="http://nsidc.org/data/seaice_index/">http://nsidc.org/data/seaice_index/</a>	5c, 5d, SB6.2
	OSI-401-b	<a href="http://navigator.eumetsat.int/product/EO:EUM:DAT:DMSP:OSI-401-B">http://navigator.eumetsat.int/product/EO:EUM:DAT:DMSP:OSI-401-B</a>	SB6.2
Sea Level/Sea Surface Height	GRACE / GRACE-FO	<a href="https://gracefo.jpl.nasa.gov/data/grace-data/">https://gracefo.jpl.nasa.gov/data/grace-data/</a>	3f
	NOAA/NESDIS/STAR	<a href="http://www.star.nesdis.noaa.gov/sod/lisa/SeaLevelRise/LSA_SLR_timeseries.php">www.star.nesdis.noaa.gov/sod/lisa/SeaLevelRise/LSA_SLR_timeseries.php</a>	3f
	Ssalto/Duacs Multimission Altimeter Products	<a href="http://marine.copernicus.eu/services-portfolio/access-to-products/?option=com_csw&amp;view=details&amp;product_id=SEALEVEL_GLO_PHY_L4_NRT_OBSERVATIONS_008_046">http://marine.copernicus.eu/services-portfolio/access-to-products/?option=com_csw&amp;view=details&amp;product_id=SEALEVEL_GLO_PHY_L4_NRT_OBSERVATIONS_008_046</a>	3f
	Tide Gauge	<a href="http://uhslc.soest.hawaii.edu/">http://uhslc.soest.hawaii.edu/</a>	3f
Sea Surface Current	Brazil-Malvina Region Confluence Region	<a href="http://www.aoml.noaa.gov/phod/altimetry/cvar/mal/BM_anm.php">www.aoml.noaa.gov/phod/altimetry/cvar/mal/BM_anm.php</a>	3g
	Long Term Time Series of Surface Currents: Agulhas Current	<a href="http://www.aoml.noaa.gov/phod/altimetry/cvar/agu/">www.aoml.noaa.gov/phod/altimetry/cvar/agu/</a>	3g
	Long Term Time Series of Surface Currents: North Brazil Current	<a href="http://www.aoml.noaa.gov/phod/altimetry/cvar/nbc">www.aoml.noaa.gov/phod/altimetry/cvar/nbc</a>	3g
	Ocean Surface Current Analysis - Real time (OSCAR)	<a href="https://podaac.jpl.nasa.gov/dataset/OSCAR_L4_OC_third-deg">https://podaac.jpl.nasa.gov/dataset/OSCAR_L4_OC_third-deg</a>	3g
	Yucatan Current	<a href="http://www.aoml.noaa.gov/phod/altimetry/cvar/yuc/transport.php">www.aoml.noaa.gov/phod/altimetry/cvar/yuc/transport.php</a>	3g

General Variable or Phenomenon	Specific dataset or variable	Source	Section
<b>Sea Surface Temperature</b>	ERSSTv5	<a href="https://doi.org/10.7289/V5T72FNM">https://doi.org/10.7289/V5T72FNM</a>	3b, 4b, 4f2
	HadSST3.1.1	<a href="http://www.metoffice.gov.uk/hadobs/hadsst3">www.metoffice.gov.uk/hadobs/hadsst3</a>	3b
	HadSST4	<a href="https://www.metoffice.gov.uk/hadobs/hadsst4/">https://www.metoffice.gov.uk/hadobs/hadsst4/</a>	3b
	NOAA Optimum Interpolation SST (OISST) v2	<a href="http://apdr.csoest.hawaii.edu/dods/public_data/NOAA_SST/OISST/monthly">http://apdr.csoest.hawaii.edu/dods/public_data/NOAA_SST/OISST/monthly</a>	4b1, 4d2, 4f
	NOAA Optimum Interpolation SST (OISST) v2	<a href="http://www.ncei.noaa.gov/data/sea-surface-temperature-optimum-interpolation/access/">www.ncei.noaa.gov/data/sea-surface-temperature-optimum-interpolation/access/</a>	2b3, 3b, 4f3, 4f5, 4f6, 4h, 5c
<b>Snow Properties</b>	Canadian Meteorological Centre Daily Snow Depth Analysis v1	<a href="https://nsidc.org/data/NSIDC-0447">https://nsidc.org/data/NSIDC-0447</a>	5g
	Crocus Snowpack Model	<a href="http://www.umr-cnrm.fr/spip.php?article265">http://www.umr-cnrm.fr/spip.php?article265</a>	5g
	GlobSnow 2	<a href="https://nsidc.org/data/NSIDC-0595/versions/2">https://nsidc.org/data/NSIDC-0595/versions/2</a>	5g
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	5g
	NOAA Interactive Multi-sensor Snow and Ice Mapping System (Snow Cover Duration)	<a href="http://www.natice.noaa.gov/ims/index.html">www.natice.noaa.gov/ims/index.html</a>	5g
	NOAA Snow Chart Data Record (Snow Cover Extent)	<a href="http://www.snowcover.org">www.snowcover.org</a>	2c2, 5g
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	5g
<b>Soil Moisture</b>	ESA CCI SM	<a href="http://www.esa-soilmoisture-cci.org/index.php">www.esa-soilmoisture-cci.org/index.php</a>	2d10
<b>Temperature, [Near] Surface</b>	Antarctic Meteorological Research Center (AMRC) AWS	<a href="http://amrc.ssec.wisc.edu/data">http://amrc.ssec.wisc.edu/data</a>	6b
	CRUTEM4	<a href="http://www.metoffice.gov.uk/hadobs/crutem4">www.metoffice.gov.uk/hadobs/crutem4</a> <a href="http://www.cru.uea.ac.uk/cru/data/temperature">http://www.cru.uea.ac.uk/cru/data/temperature</a>	5b1
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2b1, 2b3, 6b
	GHCNDEX	<a href="http://www.climdex.org/datasets.html">www.climdex.org/datasets.html</a>	2b3
	HadCRUT4 Global Temperature	<a href="http://www.metoffice.gov.uk/hadobs/hadcrut4/">www.metoffice.gov.uk/hadobs/hadcrut4/</a>	2b1
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	2b1
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2b1, SB6.1
	NASA/GISS Global Temperature	<a href="https://data.giss.nasa.gov/gistemp/">https://data.giss.nasa.gov/gistemp/</a>	2b1
	NCEP/NCAR Reanalysis	<a href="https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html">https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html</a>	5b2
	NOAA/NCEI NOAA GlobalTemp	<a href="http://www.ncdc.noaa.gov/data-access/marineocean-data/noaa-global-surface-temperature-noaaglobaltemp">www.ncdc.noaa.gov/data-access/marineocean-data/noaa-global-surface-temperature-noaaglobaltemp</a>	2b1

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Temperature, Upper Atmosphere	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2b4, 2b5, 6b, 6h
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	2b4, 2b5
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2b4, 2b5, 6h
	NOAA Extended SSU v3	<a href="https://www.star.nesdis.noaa.gov/smcd/emb/mscat/">https://www.star.nesdis.noaa.gov/smcd/emb/mscat/</a>	2b5
	RAOBCORE, RICH	<a href="http://www.univie.ac.at/theoret-met/research/raobcore">www.univie.ac.at/theoret-met/research/raobcore</a>	2b4, 2b5
	RATPAC A2	<a href="http://www.ncdc.noaa.gov/data-access/weather-balloon/radiosonde-atmospheric-temperature-products-accessing-climate/ratpac-a">www.ncdc.noaa.gov/data-access/weather-balloon/radiosonde-atmospheric-temperature-products-accessing-climate/ratpac-a</a>	2b4
	RSS v4.0	<a href="http://www.remss.com">www.remss.com</a>	2b4, 2b5
	NOAA/NESDIS/STAR	<a href="http://www.star.nesdis.noaa.gov/smcd/emb/mscat/">www.star.nesdis.noaa.gov/smcd/emb/mscat/</a>	2b5
	UAH MSU v6.0	<a href="http://vortex.nsstc.uah.edu/public/msu">http://vortex.nsstc.uah.edu/public/msu</a>	2b4, 2b5
UCAR SSU+MLS+SABER	<a href="https://data.ucar.edu/en/dataset/stratospheric-temperature-trends-over-1979-2015-derived-from-combined-ssu-mls-and-saber-satelli">https://data.ucar.edu/en/dataset/stratospheric-temperature-trends-over-1979-2015-derived-from-combined-ssu-mls-and-saber-satelli</a>	2b5	
TOA Earth Radiation Budget	CERES EBAF Ed4.1	<a href="https://eosweb.larc.nasa.gov/project/ceres/ebaf-toa_ed4.1">https://eosweb.larc.nasa.gov/project/ceres/ebaf-toa_ed4.1</a>	2f1
	CERES FLASHFlux	<a href="https://ceres-tool.larc.nasa.gov/ord-tool/jsp/FLASH_TISASelection.jsp">https://ceres-tool.larc.nasa.gov/ord-tool/jsp/FLASH_TISASelection.jsp</a>	2f1
Solar Transmission, Apparent	Mauna Loa Observatory	<a href="https://www.esrl.noaa.gov/gmd/grad/mloapt.html">https://www.esrl.noaa.gov/gmd/grad/mloapt.html</a>	2f2
Trace Gases	Atmospheric Greenhouse Gas Index (AGGI)	<a href="http://www.esrl.noaa.gov/gmd/aggi">www.esrl.noaa.gov/gmd/aggi</a>	2g1
	Carbon Dioxide (CO2)	<a href="http://www.esrl.noaa.gov/gmd/dv/iadv">www.esrl.noaa.gov/gmd/dv/iadv</a>	2g1
	Carbon Monoxide (CO)	<a href="https://atmosphere.copernicus.eu/">https://atmosphere.copernicus.eu/</a>	2g7
	Carbon Monoxide (CO) - WMO World Data Centre for GHGs	<a href="https://gaw.kishou.go.jp">https://gaw.kishou.go.jp</a>	2g7
	Chlorine Monoxide (ClO) - Aura MLS	<a href="http://mls.jpl.nasa.gov/products/clo_product.php">http://mls.jpl.nasa.gov/products/clo_product.php</a>	6h
	Halocarbons (CFCs, HFCs, HCFCs)	<a href="http://www.esrl.noaa.gov/gmd/hats/data.html">www.esrl.noaa.gov/gmd/hats/data.html</a>	2g1, 2g2
	Methane	<a href="http://www.esrl.noaa.gov/gmd/dv/iadv">www.esrl.noaa.gov/gmd/dv/iadv</a>	2g1
	Nitrous Oxide	<a href="http://www.esrl.noaa.gov/gmd/hats/combined/N2O.html">www.esrl.noaa.gov/gmd/hats/combined/N2O.html</a>	2g1
	Ozone-Depleting Gas Index (ODGI)	<a href="http://www.esrl.noaa.gov/gmd/odgi">www.esrl.noaa.gov/gmd/odgi</a>	2g2
	Perfluorocarbons	<a href="http://agage.eas.gatech.edu">http://agage.eas.gatech.edu</a>	2g1
Sulfur Hexafluoride	<a href="http://www.esrl.noaa.gov/gmd/hats/combined/SF6.html">www.esrl.noaa.gov/gmd/hats/combined/SF6.html</a>	2g1	
Tropical Cyclone Data	HURDAT2	<a href="http://www.aoml.noaa.gov/hrd/hurdat/Data_Storm.html">www.aoml.noaa.gov/hrd/hurdat/Data_Storm.html</a>	4f2
	International Best Track Archive for Climate Stewardship (IBTrACS)	<a href="http://www.ncdc.noaa.gov/ibtracs/">www.ncdc.noaa.gov/ibtracs/</a>	4f1, 4f3, 4f5, 4f6, 4f7
	JTWC Best-track Dataset (2011 preliminary)	<a href="http://www.usno.navy.mil/NOOC/nmfc-ph/RSS/jtwc/best_tracks">www.usno.navy.mil/NOOC/nmfc-ph/RSS/jtwc/best_tracks</a>	4f4, 4f5
	RSMC-Tokyo, JMA best-track data	<a href="http://www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/besttrack.html">www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/besttrack.html</a>	4f4
	Southwest Pacific Enhanced Archive of Tropical Cyclones (SPEARTC)	<a href="http://apdr.c.soest.hawaii.edu/projects/speartc">http://apdr.c.soest.hawaii.edu/projects/speartc</a>	4f8



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UV Radiation Data	Canadian sites	<a href="ftp://exp-studies.tor.ec.gc.ca/pub/uvdata/Preliminary/MSC">ftp://exp-studies.tor.ec.gc.ca/pub/uvdata/Preliminary/MSC</a>	5j2
	Greenland site	<a href="http://uv.biospherical.com/Version2/data.asp">http://uv.biospherical.com/Version2/data.asp</a>	5j2
	Finnish sites	<a href="http://litdb.fmi.fi/soundingst_uvradiation.php">http://litdb.fmi.fi/soundingst_uvradiation.php</a> <a href="http://uv.fmi.fi/uvdb/">http://uv.fmi.fi/uvdb/</a>	5j2
	Norwegian sites	<a href="https://github.com/uvnrpa/Minute_Data">https://github.com/uvnrpa/Minute_Data</a>	5j2
	OMI	<a href="https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20OMI">https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20OMI</a>	5j2
Water Vapor, Stratosphere	Frost Point Hygrometer Data (Boulder, Hilo, Lauder)	<a href="ftp://aftp.cmdl.noaa.gov/data/ozwv/WaterVapor">ftp://aftp.cmdl.noaa.gov/data/ozwv/WaterVapor</a>	2g5
	Frost Point Hygrometer Data (San Jose, Costa Rica)	<a href="http://physics.valpo.edu/ozone/ticosonde.html">http://physics.valpo.edu/ozone/ticosonde.html</a>	2g5
	Frost Point Hygrometer (Lindenberg, Germany)	<a href="https://www.dwd.de/EN/research/observing_atmosphere/lindenberg_column/in_situ/in_situ_node.html">https://www.dwd.de/EN/research/observing_atmosphere/lindenberg_column/in_situ/in_situ_node.html</a>	2g5
	NASA Aura Microwave Limb Sounder	<a href="https://mls.jpl.nasa.gov/products/h2o_product.php">https://mls.jpl.nasa.gov/products/h2o_product.php</a>	2g5
Water Vapor, Total Column	COSMIC GPS-RO	<a href="http://cdaac-www.cosmic.ucar.edu/cdaac/products.html">http://cdaac-www.cosmic.ucar.edu/cdaac/products.html</a>	2d2
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2d2
	GNSS Ground-Based Total Column Water Vapor	<a href="https://rda.ucar.edu/datasets/ds721.1/">https://rda.ucar.edu/datasets/ds721.1/</a>	2d2
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	2d2
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2d2
	RSS SSM/I -AMSR-E Ocean Total Column Water Vapor	<a href="http://www.remss.com">www.remss.com</a>	2d2
Wind, [Near] Surface	NOAA-CIRES-DOE 20th Century Reanalysis v3	<a href="https://psl.noaa.gov/data/gridded/data.20thC_ReanV3.html">https://psl.noaa.gov/data/gridded/data.20thC_ReanV3.html</a>	2e2
	Australian (McVicar)	<a href="http://doi.org/10.4225/08/56A85491DDED2">http://doi.org/10.4225/08/56A85491DDED2</a>	200
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2e2
	HadISD3	<a href="http://www.metoffice.gov.uk/hadobs/hadisd/">www.metoffice.gov.uk/hadobs/hadisd/</a>	2e2
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	4h
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2e2
	RSS SSM/I Ocean Winds	<a href="http://www.remss.com/measurements/wind">www.remss.com/measurements/wind</a>	2e2
Wind, Upper Atmosphere	Climate Forecast System Reanalysis	<a href="http://www.ncdc.noaa.gov/data-access/model-data/model-datasets/climate-forecast-system-version2-cfsv2">www.ncdc.noaa.gov/data-access/model-data/model-datasets/climate-forecast-system-version2-cfsv2</a>	4f3, 4f5, 4f6
	ERA5	<a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a>	2e3, 4e, 6b
	ERA-Interim	<a href="http://www.ecmwf.int/en/research/climate-reanalysis/era-interim">www.ecmwf.int/en/research/climate-reanalysis/era-interim</a>	2e3
	JRA-55 Atmospheric Reanalysis	<a href="http://jra.kishou.go.jp/JRA-55/index_en.html">http://jra.kishou.go.jp/JRA-55/index_en.html</a>	2e3
	MERRA-2	<a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a>	2e3, SB6.1
	NCEP/NCAR Reanalysis	<a href="http://www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.html">www.esrl.noaa.gov/psd/data/gridded/data.ncep.reanalysis.html</a>	4b2, 4b3, 4c, 4f2

