Cover Credit:
Mauna Loa observatory, island of Hawai‘i, site of atmospheric carbon dioxide measurements since March, 1958.

(Image credits: Left image: Susan Cobb, Global Systems Laboratory; Right upper image: Brian Vasel, Global Monitoring Laboratory; Right lower image: Susan Cobb, Global Systems Laboratory).
## 8. RELEVANT DATASETS AND SOURCES

### Chapter 2: Global Climate – Datasets and Sources

#### Section 2b Temperature

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2b1</td>
<td>Temperature, [Near] Surface</td>
<td>Berkeley Earth</td>
<td><a href="http://berkeleyearth.org/data/">http://berkeleyearth.org/data/</a></td>
</tr>
<tr>
<td>2b1, 2b3</td>
<td>Temperature, [Near] Surface</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>2b1</td>
<td>Temperature, [Near] Surface</td>
<td>HadCRUT5 Global Temperature</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/hadcrut5/">https://www.metoffice.gov.uk/hadobs/hadcrut5/</a></td>
</tr>
<tr>
<td>2b1</td>
<td>Temperature, [Near] Surface</td>
<td>CRUTEM5</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/crutem5/">https://www.metoffice.gov.uk/hadobs/crutem5/</a></td>
</tr>
<tr>
<td>2b1, 2b3</td>
<td>Temperature, [Near] Surface</td>
<td>HadSST4</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/hadsst4/">https://www.metoffice.gov.uk/hadobs/hadsst4/</a></td>
</tr>
<tr>
<td>2b1, 2b4</td>
<td>Temperature, [Near] Surface</td>
<td>JRA-55 Atmospheric Reanalysis</td>
<td><a href="https://search.diasjp.net/en/dataset/JRA55">https://search.diasjp.net/en/dataset/JRA55</a></td>
</tr>
<tr>
<td>2b1, 2b2</td>
<td>Temperature, [Near] Surface</td>
<td>NASA/GISS Global Temperature V4</td>
<td><a href="https://data.giss.nasa.gov/gistemp/">https://data.giss.nasa.gov/gistemp/</a></td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>ERA5</td>
<td><a href="https://doi.org/10.24381/cds.adbb2d47">https://doi.org/10.24381/cds.adbb2d47</a></td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>Balaton Lakes</td>
<td><a href="https://odp.met.hu/climate/observations_hungary/hourly/historical/">https://odp.met.hu/climate/observations_hungary/hourly/historical/</a></td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>Douglas Lake</td>
<td><a href="https://uglos.mtu.edu/station_page.php?station=UMBIO">https://uglos.mtu.edu/station_page.php?station=UMBIO</a></td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>Trout Lake</td>
<td><a href="https://portal.edirepository.org/nis/mapbrowse?scope=knb-ltl&amp;identifier=116&amp;revision=27">https://portal.edirepository.org/nis/mapbrowse?scope=knb-ltl&amp;identifier=116&amp;revision=27</a></td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>ESA CCI LAKES LSWT v2.0.2</td>
<td><a href="https://catalogue.ceda.ac.uk/uuid/a07deacff8453e93d57ee214676304">https://catalogue.ceda.ac.uk/uuid/a07deacff8453e93d57ee214676304</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2b2</td>
<td>Lake Temperature</td>
<td>Sentinel 3 Sea and Land Surface Temperature Radiometer (SLSTR)</td>
<td><a href="https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-slstr/overview">link</a></td>
</tr>
<tr>
<td>2b3</td>
<td>Nighttime marine Air Temperature</td>
<td>CLASSnmat</td>
<td><a href="https://catalogue.ceda.ac.uk/uuid/5bbf48b128bd488d8b10a56111feb36a">link</a></td>
</tr>
<tr>
<td>2b3</td>
<td>Nighttime marine Air Temperature</td>
<td>UAHNMATv1</td>
<td>[link](<a href="https://www.nsstc.uah.edu/climate/">https://www.nsstc.uah.edu/climate/</a>, <a href="https://doi.org/10.1002/joc.6354">https://doi.org/10.1002/joc.6354</a>)</td>
</tr>
<tr>
<td>2b4</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation Sea Surface Temperature (OISST) v2.1</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">link</a></td>
</tr>
<tr>
<td>2b4</td>
<td>Temperature, [Near] Surface</td>
<td>GHCNDEX</td>
<td><a href="www.climdex.org/">link</a></td>
</tr>
<tr>
<td>2b4</td>
<td>Temperature, [Near] Surface</td>
<td>MERRA-2</td>
<td><a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">link</a></td>
</tr>
<tr>
<td>2b4</td>
<td>Temperature, Upper Atmosphere</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>MERRA-2</td>
<td><a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>NOAA/NESDIS/STAR MSU v5</td>
<td><a href="https://www.star.nesdis.noaa.gov/pub/smcd/emb/mscat/data/MSU_AMSU_v5.0/Monthly_ATmospheric_Layer_Mean_Temperature/">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>RAOBCORE, RICH</td>
<td><a href="https://imgw.univie.ac.at/forschung/klimadiagnose/raobcore/">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>RATPAC A2</td>
<td><a href="https://www.ncei.noaa.gov/products/weather-balloon/radiosonde-atmospheric-temperature-products">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>RSS v4.0</td>
<td><a href="https://www.remss.com/measurements/upper-air-temperature/">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>UAH MSU v6.0</td>
<td><a href="https://www.nsstc.uah.edu/data/msu/v6.0/">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Temperature, Upper Atmosphere</td>
<td>UW MSU v1.0</td>
<td><a href="https://pochedls.github.io/#1data.md">link</a></td>
</tr>
<tr>
<td>2b5</td>
<td>Sea Surface Temperature</td>
<td>Niño 3.4 Index</td>
<td><a href="https://psl.noaa.gov/gcos_wgsp/Timeseries/Nino34/">link</a></td>
</tr>
<tr>
<td>2b6</td>
<td>Temperature, Upper Atmosphere</td>
<td>Aura ML5</td>
<td><a href="https://mls.jpl.nasa.gov/eos-aura-mls/data-products/temperature">link</a></td>
</tr>
</tbody>
</table>
### Section 2c Cryosphere

<table>
<thead>
<tr>
<th>Subsection</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2c1</td>
<td>Permafrost</td>
<td>Global Terrestrial Network for Permafrost (GTN-P)</td>
<td><a href="http://gtnpdatabase.org/">http://gtnpdatabase.org/</a></td>
</tr>
<tr>
<td>2c1</td>
<td>Permafrost</td>
<td>GTN-P global mean annual ground temperature data for permafrost</td>
<td><a href="https://doi.org/10.1594/PANGAEA.884711">https://doi.org/10.1594/PANGAEA.884711</a></td>
</tr>
<tr>
<td>2c1</td>
<td>Permafrost</td>
<td>Permafrost Temperature at Chinese (QTP) sites</td>
<td><a href="https://nsidc.org/data/GGD700/versions/1">https://nsidc.org/data/GGD700/versions/1</a></td>
</tr>
<tr>
<td>2c1</td>
<td>Permafrost</td>
<td>Permafrost Temperature at French sites</td>
<td><a href="http://permafrance.osug.fr">permafrance.osug.fr</a></td>
</tr>
<tr>
<td>2c1</td>
<td>Permafrost</td>
<td>Permafrost Temperature at Norwegian sites</td>
<td><a href="https://cryo.met.no/">https://cryo.met.no/</a></td>
</tr>
<tr>
<td>2c3</td>
<td>Glacier Mass, Area or Volume</td>
<td>World Glacier Monitoring Service</td>
<td><a href="http://dx.doi.org/10.5904/wgms-fog-2022-09">http://dx.doi.org/10.5904/wgms-fog-2022-09</a></td>
</tr>
<tr>
<td>2c3</td>
<td>Glacier Area</td>
<td>Copernicus Sentinel-2 MSI image</td>
<td><a href="https://sentinels.copernicus.eu/web/sentinel/user-guides/sentinel-2-msi/overview">https://sentinels.copernicus.eu/web/sentinel/user-guides/sentinel-2-msi/overview</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>ERAS</td>
<td><a href="https://doi.org/10.24381/cds.adbb2d47">https://doi.org/10.24381/cds.adbb2d47</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>Lake ice clearance and formation data for Green Lakes Valley, 1968 - ongoing. ver 5. Environmental Data Initiative</td>
<td><a href="https://portal.edirepository.org/nis/mapbrowse?packageid=knblter-nwt.106.5">https://portal.edirepository.org/nis/mapbrowse?packageid=knblter-nwt.106.5</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>Global Lake and River Ice Phenology Database, Version 1</td>
<td><a href="https://doi.org/10.7265/N5W66HP8">https://doi.org/10.7265/N5W66HP8</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>Mountain Lake Biology, Chemistry, Physics, and Climate Data since 1959 at Castle Lake ver 1. Environmental Data Initiative</td>
<td><a href="https://doi.org/10.6073/pasta/a8e3b81cfe5864731b29ad42506c65d7">https://doi.org/10.6073/pasta/a8e3b81cfe5864731b29ad42506c65d7</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>Great Lakes Annual Maximum Ice Cover (%)</td>
<td><a href="https://www.glerl.noaa.gov/data/ice/">https://www.glerl.noaa.gov/data/ice/</a></td>
</tr>
<tr>
<td>2c4</td>
<td>Lake Ice</td>
<td>Great Lakes Ice</td>
<td><a href="http://www.glerl.noaa.gov/data/ice">www.glerl.noaa.gov/data/ice</a></td>
</tr>
</tbody>
</table>
### Relevant Datasets and Sources

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2c4</td>
<td>Temperature, [Near] Surface</td>
<td>NASA/GISS Global Temperature</td>
<td><a href="https://data.giss.nasa.gov/gistemp/">https://data.giss.nasa.gov/gistemp/</a></td>
</tr>
<tr>
<td>2c5</td>
<td>Snow Properties</td>
<td>Northern Hemisphere (NH) Snow Cover Extent (SCE), Version 1</td>
<td>doi:10.7289/V5N014G9, <a href="http://www.snowcover.org">www.snowcover.org</a></td>
</tr>
</tbody>
</table>

### Section 2d Hydrological Cycle

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2d1, 2d2</td>
<td>Humidity, [Near] Surface</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>2d1, 2d2</td>
<td>Humidity, [Near] Surface</td>
<td>HadISDH</td>
<td>[<a href="http://www.metoffice.gov.uk/hadobs/hadisdh">www.metoffice.gov.uk/hadobs/hadisdh</a>, <a href="https://catalogue.ceda.ac.uk/uuid/251474c7b09449d8b9e7aef1461858f">https://catalogue.ceda.ac.uk/uuid/251474c7b09449d8b9e7aef1461858f</a>](<a href="https://www.metoffice.gov.uk/hadobs/hadisdh">https://www.metoffice.gov.uk/hadobs/hadisdh</a>, <a href="https://catalogue.ceda.ac.uk/uuid/251474c7b09449d8b9e7aef1461858f">https://catalogue.ceda.ac.uk/uuid/251474c7b09449d8b9e7aef1461858f</a>)</td>
</tr>
<tr>
<td>2d2</td>
<td>Water Vapor, Total Column</td>
<td>COSMIC</td>
<td><a href="https://cdiac-www.cosmic.ucar.edu/">https://cdiac-www.cosmic.ucar.edu/</a></td>
</tr>
<tr>
<td>2d2</td>
<td>Water Vapor, Total Column</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>2d2</td>
<td>Water Vapor, Total Column</td>
<td>GNSS Ground-Based Total Column Water Vapor</td>
<td><a href="https://doi.org/10.25326/68">https://doi.org/10.25326/68</a></td>
</tr>
<tr>
<td>2d2</td>
<td>Water Vapor, Total Column</td>
<td>MERRA-2</td>
<td><a href="https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">https://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a></td>
</tr>
<tr>
<td>2d2</td>
<td>Water Vapor, Total Column</td>
<td>SSM/I - AMSR-E Ocean Total Column Water Vapor</td>
<td><a href="http://www.remss.com">http://www.remss.com</a></td>
</tr>
<tr>
<td>2d3</td>
<td>Humidity, Upper Atmosphere</td>
<td>Upper Troposphere Humidity (UTH)</td>
<td>Available on request to Brian Soden</td>
</tr>
<tr>
<td>2d3</td>
<td>Humidity, Upper Atmosphere</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2d3</td>
<td>Temperature, Upper Atmosphere</td>
<td>NOAA/NESDIS/STAR MSU v5</td>
<td><a href="https://www.star.nesdis.noaa.gov/pub/smcd/emb/mscat/data/MSU_AMSU_v5.0/Monthly_Atlmospheric_Layer_Mean_Temperature/">https://www.star.nesdis.noaa.gov/pub/smcd/emb/mscat/data/MSU_AMSU_v5.0/Monthly_Atlmospheric_Layer_Mean_Temperature/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2d4, 2d5</td>
<td>Precipitation</td>
<td>GPCC</td>
<td><a href="http://www.dwd.de/EN/ourservices/gpcc/gpcc.html">www.dwd.de/EN/ourservices/gpcc/gpcc.html</a></td>
</tr>
<tr>
<td>2d4</td>
<td>Precipitation</td>
<td>Global Precipitation Climate Project (GPCP) v2.3</td>
<td><a href="https://www.ncei.noaa.gov/products/global-precipitation-climatology-project">https://www.ncei.noaa.gov/products/global-precipitation-climatology-project</a></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS)</td>
<td><a href="https://www.chc.ucsb.edu/data/chirps">https://www.chc.ucsb.edu/data/chirps</a></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>Climate Extremes Index Component 4</td>
<td><a href="https://www.ncdc.noaa.gov/extremes/cei/">https://www.ncdc.noaa.gov/extremes/cei/</a></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>GHCN v4</td>
<td><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></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>GHCNDEX</td>
<td><a href="http://www.climdex.org/">www.climdex.org/</a></td>
</tr>
<tr>
<td>2d5</td>
<td>Precipitation</td>
<td>GPCC</td>
<td><a href="http://www.dwd.de/EN/ourservices/gpcc/gpcc.html">www.dwd.de/EN/ourservices/gpcc/gpcc.html</a></td>
</tr>
<tr>
<td>2d7</td>
<td>Lake Water Levels</td>
<td>NASA/CNES Topex/Poseidon and Jason satellite missions through the Global Reservoir and Lake Monitoring (G-REALM) project v2.5</td>
<td><a href="https://ipad.fas.usda.gov/cropexplorer/global_reservoir/">https://ipad.fas.usda.gov/cropexplorer/global_reservoir/</a></td>
</tr>
<tr>
<td>2d7</td>
<td>Lake Surface Area</td>
<td>HydroLAKES database</td>
<td><a href="https://www.hydrosheds.org/products/hydrolakes">https://www.hydrosheds.org/products/hydrolakes</a></td>
</tr>
<tr>
<td>2d7</td>
<td>Lake Water Levels</td>
<td>Kraemer (2023) Lake Water Levels</td>
<td><a href="https://zenodo.org/record/7635482">https://zenodo.org/record/7635482</a></td>
</tr>
</tbody>
</table>
### Section 2d Relevant Datasets and Sources

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2d8</td>
<td>Groundwater and terrestrial water storage</td>
<td>GRACE / GRACE-FO</td>
<td><a href="https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC-GRFO_MASCON_CRI_GRID_RL06.1_V3">https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC-GRFO_MASCON_CRI_GRID_RL06.1_V3</a></td>
</tr>
<tr>
<td>2d8</td>
<td>Lake Water Level</td>
<td>Database for Hydrological Time Series of Inland Waters (DAHITI) - Lake Kariba</td>
<td><a href="https://dahiti.dgfi.tum.de/en/31/time_series/">https://dahiti.dgfi.tum.de/en/31/time_series/</a></td>
</tr>
<tr>
<td>2d9</td>
<td>Soil Moisture</td>
<td>Copernicus Climate Change Service (C3S) v202012 product based on the ESA Climate Change Initiative for Soil Moisture (ESA CCI SM) v05.2 merging algorithm</td>
<td><a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-soil-moisture?tab=form">https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-soil-moisture?tab=form</a></td>
</tr>
<tr>
<td>2d10</td>
<td>Drought</td>
<td>Climatic Research Unit grided Time Series (CRU TS) 4.07</td>
<td><a href="https://crudata.uea.ac.uk/cru/data/hrg/cru_ts_4.07/">https://crudata.uea.ac.uk/cru/data/hrg/cru_ts_4.07/</a></td>
</tr>
<tr>
<td>2d11</td>
<td>Land Evaporation</td>
<td>Climatic Research Unit grided Time Series (CRU TS) 4.07</td>
<td><a href="http://www.gleam.eu/">www.gleam.eu/</a></td>
</tr>
<tr>
<td>2d11</td>
<td>Modes of Variability</td>
<td>Southern Oscillation Index</td>
<td><a href="https://crudata.uea.ac.uk/cru/data/soi/">https://crudata.uea.ac.uk/cru/data/soi/</a></td>
</tr>
</tbody>
</table>

### Section 2e Atmospheric Circulation

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2e1</td>
<td>Modes of Variability</td>
<td>Antarctic Oscillation (AAO)/Southern Annular Mode (SAM)</td>
<td><a href="https://ftp.cpc.ncep.noaa.gov/cwlinks/norm.daily.aa.index.b790101.current.ascii">https://ftp.cpc.ncep.noaa.gov/cwlinks/norm.daily.aa.index.b790101.current.ascii</a></td>
</tr>
<tr>
<td>2e1</td>
<td>Pressure, Sea Level or Near-Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>2e1</td>
<td>Pressure, Sea Level or Near-Surface</td>
<td>NCEP/NCAR Reanalysis</td>
<td><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></td>
</tr>
<tr>
<td>2e2</td>
<td>Modes of Variability</td>
<td>Antarctic Oscillation (AAO)/Southern Annular Mode (SAM)</td>
<td><a href="https://ftp.cpc.ncep.noaa.gov/cwlinks/norm.daily.aa.index.b790101.current.ascii">https://ftp.cpc.ncep.noaa.gov/cwlinks/norm.daily.aa.index.b790101.current.ascii</a></td>
</tr>
<tr>
<td>2e2</td>
<td>Wind, [Near] Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2e3</td>
<td>Modes of Variability</td>
<td>Antarctic Oscillation (AAO), Southern Annular Mode (SAM)</td>
<td><a href="https://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_aao_index/aao/aao.shtml">https://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_aao_index/aao/aao.shtml</a>, <a href="http://www.nerc-bas.ac.uk/icd/gjma/sam.html">http://www.nerc-bas.ac.uk/icd/gjma/sam.html</a></td>
</tr>
<tr>
<td>2e3</td>
<td>Wind [Upper Atmosphere]</td>
<td>ERA5 hourly data on pressure levels from 1940 to present. Copernicus Climate Change Service (C3S) Climate Data Store (CDS)</td>
<td><a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-pressure-levels?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-pressure-levels?tab=overview</a></td>
</tr>
<tr>
<td>2e3</td>
<td>Wind [Upper Atmosphere]</td>
<td>ERA-Interim</td>
<td><a href="www.ecmwf.int/en/research/climate-reanalysis/era-interim">www.ecmwf.int/en/research/climate-reanalysis/era-interim</a></td>
</tr>
<tr>
<td>2e4</td>
<td>Lightning</td>
<td>Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data Version 1</td>
<td><a href="http://dx.doi.org/10.5067/LIS/ISSLIS/DATA108">http://dx.doi.org/10.5067/LIS/ISSLIS/DATA108</a></td>
</tr>
<tr>
<td>2e4</td>
<td>Lightning</td>
<td>Lightning Imaging Sensor (LIS) on TRMM Science Data V4</td>
<td><a href="http://dx.doi.org/10.5067/LIS/LIS/DATA201">http://dx.doi.org/10.5067/LIS/LIS/DATA201</a></td>
</tr>
<tr>
<td>2e4</td>
<td>Lightning</td>
<td>Optical Transient Detector (OTD) Lightning v1</td>
<td><a href="http://dx.doi.org/10.5067/LIS/OTD/DATA101">http://dx.doi.org/10.5067/LIS/OTD/DATA101</a></td>
</tr>
<tr>
<td>2e4</td>
<td>Lightning</td>
<td>GOES-R Geostationary Lightning Mapper (GLM) Gridded Data Products V1</td>
<td><a href="http://dx.doi.org/10.5067/GLM/GRID/DATA101">http://dx.doi.org/10.5067/GLM/GRID/DATA101</a></td>
</tr>
</tbody>
</table>
### Section 2f Earth’s Radiation Budget

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2f1</td>
<td>TOA Earth Radiation Budget</td>
<td>CERES Energy Balanced and Filled version 4.2</td>
<td><a href="https://ceres-tool.larc.nasa.gov/ord-tool/jsp/EBAFTA42Selection.jsp">https://ceres-tool.larc.nasa.gov/ord-tool/jsp/EBAFTA42Selection.jsp</a></td>
</tr>
<tr>
<td>2f1</td>
<td>TOA Earth Radiation Budget</td>
<td>CERES FLASHflux version 4A</td>
<td><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></td>
</tr>
<tr>
<td>2f1</td>
<td>TOA Earth Radiation Budget</td>
<td>TSIS TIM Level 3 Total Solar Irradiance 24-hour Means</td>
<td>doi:10.5067/TSIS/TIM/DATA306</td>
</tr>
<tr>
<td>2f2</td>
<td>Solar Transmission, Apparent</td>
<td>HYSPLIT</td>
<td><a href="https://www.ready.noaa.gov/HYSPLIT.php">https://www.ready.noaa.gov/HYSPLIT.php</a></td>
</tr>
<tr>
<td>2f2</td>
<td>Solar Transmission, Apparent</td>
<td>Mauna Loa Observatory</td>
<td><a href="https://www.esrl.noaa.gov/gmd/webdata/grad/mloapt/mauna_loa_transmission.dat">https://www.esrl.noaa.gov/gmd/webdata/grad/mloapt/mauna_loa_transmission.dat</a></td>
</tr>
<tr>
<td>2f2</td>
<td>Cloud Aerosol</td>
<td>Cloud-Aerosol LIDAR and Infrared Pathfinder Satellite Observations (CALIPSO)</td>
<td><a href="http://www-calipso.larc.nasa.gov">http://www-calipso.larc.nasa.gov</a></td>
</tr>
<tr>
<td>2f2</td>
<td>Ozone, Stratospheric</td>
<td>Ozone Mapping and Profiler Suite (OMPS)</td>
<td><a href="https://ozoneaq.gsfc.nasa.gov/data/ozone/">https://ozoneaq.gsfc.nasa.gov/data/ozone/</a></td>
</tr>
<tr>
<td>2f2</td>
<td>Ozone, Stratospheric</td>
<td>Stratospheric Aerosol and Gas Experiment (SAGE) limb sounder</td>
<td><a href="https://asdc.larc.nasa.gov/project/SAGE%20III-ISS">https://asdc.larc.nasa.gov/project/SAGE%20III-ISS</a></td>
</tr>
</tbody>
</table>

### Section 2g Atmospheric Composition

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2g1</td>
<td>Trace Gases</td>
<td>Atmospheric Gas trends</td>
<td><a href="http://www.esrl.noaa.gov/gmd/ccgg/trends">www.esrl.noaa.gov/gmd/ccgg/trends</a></td>
</tr>
<tr>
<td>2g1</td>
<td>Trace Gases</td>
<td>Global Greenhouse Gas Reference Network</td>
<td><a href="https://gml.noaa.gov/ccgg/about.html">https://gml.noaa.gov/ccgg/about.html</a></td>
</tr>
<tr>
<td>2g1</td>
<td>Trace Gases</td>
<td>Atmospheric Greenhouse Gas Index (AGGI)</td>
<td><a href="http://www.esrl.noaa.gov/gmd/aggi">www.esrl.noaa.gov/gmd/aggi</a></td>
</tr>
<tr>
<td>2g2</td>
<td>Trace Gases</td>
<td>Halocarbons and other Atmospheric Trace Species</td>
<td><a href="https://gml.noaa.gov/aftp/data/hats/">https://gml.noaa.gov/aftp/data/hats/</a></td>
</tr>
<tr>
<td>2g2</td>
<td>Trace Gases</td>
<td>Advanced Global Atmospheric Gases Experiment</td>
<td><a href="https://agage2.eas.gatech.edu/data_archive/global_mean/global_mean_ms.txt">https://agage2.eas.gatech.edu/data_archive/global_mean/global_mean_ms.txt</a></td>
</tr>
<tr>
<td>2g2</td>
<td>Trace Gases</td>
<td>Ozone-Depleting Gas Index (ODGI)</td>
<td><a href="http://www.esrl.noaa.gov/gmd/odgi">www.esrl.noaa.gov/gmd/odgi</a></td>
</tr>
<tr>
<td>2g3</td>
<td>Aerosols</td>
<td>Advanced Along Track Scanning Radiometer (AATSR)</td>
<td><a href="https://earth.esa.int/eogateway/instruments/aatrsr">https://earth.esa.int/eogateway/instruments/aatrsr</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2g3</td>
<td>Aerosols</td>
<td>Copernicus Atmosphere Monitoring Service Reanalysis (CAMSRA)</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>GOME/SCIAMACHY/GOME2 (GSG) Merged Total Ozone</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>GOME/SCIAMACHY/GOME2 (GTO) Merged Total Ozone</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>GOZCARDS ozone profiles</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Multi Sensor Reanalysis (MSR-2) of total ozone</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>NASA BUV/ SBUV/OMPS v8.7 (MOD) Merged Ozone</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>NOAA SBUV V8.6 OMPS V4r1 cohesive data set (COH)</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Network for the Detection of Atmospheric Composition Change (NDACC) lidar, microwave and FTIR</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>SAGE/OSIRIS</td>
<td>Bourassa et al. (2018) doi:10.5194/amt-11-489-2018</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>SWOOSH</td>
<td>[link]</td>
</tr>
<tr>
<td>2g4</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>WOUDC Ground-based Ozone</td>
<td>[link]</td>
</tr>
<tr>
<td>2g5</td>
<td>Stratospheric Water Vapor</td>
<td>the Aura Microwave Limb Sounder version 5.0 data, as merged into SWOOSH</td>
<td>[link]</td>
</tr>
<tr>
<td>2g5</td>
<td>Tropopause Temperature</td>
<td>MERRA-2</td>
<td>[link]</td>
</tr>
<tr>
<td>2g5</td>
<td>Stratospheric Water Vapor</td>
<td>NOAA Frostpoint Hygrometer (FPH)</td>
<td>[link]</td>
</tr>
<tr>
<td>2g5</td>
<td>Stratospheric Water Vapor</td>
<td>Cryogenic Frostpoint Hygrometer (CFH)</td>
<td>[link]</td>
</tr>
<tr>
<td>2g6</td>
<td>Ozone, Tropospheric</td>
<td>NOAA Global Monitoring Laboratory</td>
<td>[link]</td>
</tr>
<tr>
<td>2g7</td>
<td>Trace Gases</td>
<td>Copernicus Atmosphere Monitoring Service Reanalysis (CAMSRA) for Carbon Monoxide</td>
<td>[link]</td>
</tr>
</tbody>
</table>
### Section 2h Land Surface Properties

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2h1</td>
<td>Albedo</td>
<td>MODIS/Terra+Aqua BRDF/Albedo Albedo Daily L3 Global 0.05Deg CMG V061</td>
<td><a href="https://lpdaac.usgs.gov/products/mcd43c3v061/">https://lpdaac.usgs.gov/products/mcd43c3v061/</a></td>
</tr>
<tr>
<td>2h2</td>
<td>fraction of absorbed photosynthetically active radiation (FAPAR)</td>
<td>JRC TIP MODIS</td>
<td><a href="https://fapar.jrc.ec.europa.eu">https://fapar.jrc.ec.europa.eu</a></td>
</tr>
<tr>
<td>2h2</td>
<td>FAPAR</td>
<td>MERIS</td>
<td><a href="https://fapar.jrc.ec.europa.eu">https://fapar.jrc.ec.europa.eu</a></td>
</tr>
<tr>
<td>2h2</td>
<td>FAPAR</td>
<td>SeaWiFS FAPAR</td>
<td><a href="http://fapar.jrc.ec.europa.eu/">http://fapar.jrc.ec.europa.eu/</a></td>
</tr>
<tr>
<td>2h3</td>
<td>Biomass, Greenness or Burning</td>
<td>GFAS v1.4</td>
<td>ftp://ftp.mpac.de/GFAS/sc17 (special reprocessing)</td>
</tr>
<tr>
<td>2h3</td>
<td>Biomass, Greenness or Burning</td>
<td>Global Fire Emissions Database</td>
<td><a href="https://www.globalfiredata.org/data.html">https://www.globalfiredata.org/data.html</a></td>
</tr>
<tr>
<td>2h3</td>
<td>Deforestation</td>
<td>PRODES Amazonia</td>
<td><a href="http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes">http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>USA-National Phenology Network (NPN)</td>
<td><a href="https://www.usanpn.org/data/observational">https://www.usanpn.org/data/observational</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>German oak phenology data</td>
<td><a href="https://opendata.dwd.de/">https://opendata.dwd.de/</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>Harvard Forest</td>
<td><a href="https://harvardforest1.fas.harvard.edu/exist/apps/datasets/showData.html?id=hf003">https://harvardforest1.fas.harvard.edu/exist/apps/datasets/showData.html?id=hf003</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>Natures Calendar</td>
<td><a href="https://naturescalendar.woodlandtrust.org.uk/">https://naturescalendar.woodlandtrust.org.uk/</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>PhenoCam</td>
<td><a href="http://phenocam.sr.unh.edu">http://phenocam.sr.unh.edu</a></td>
</tr>
<tr>
<td>2h4</td>
<td>Phenology</td>
<td>UK Cumbrian lakes data</td>
<td><a href="https://catalogue.ceh.ac.uk/documents/bf30d6aa-345a-4771-8417-fbbcf8c08c28/">https://catalogue.ceh.ac.uk/documents/bf30d6aa-345a-4771-8417-fbbcf8c08c28/</a></td>
</tr>
<tr>
<td>2h5</td>
<td>Vegetation Optical Depth</td>
<td>Global Long-term Microwave Vegetation Optical Depth Climate Archive (VODCA)</td>
<td><a href="https://zenodo.org/record/2575599">https://zenodo.org/record/2575599</a></td>
</tr>
</tbody>
</table>
### Sidebar 2.1 Assessing Humid heat extremes over land

<table>
<thead>
<tr>
<th>Subsection</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB2.1</td>
<td>Temperature [Near] Surface</td>
<td>WMO Climpact indices</td>
<td><a href="https://climpact-sci.org/">https://climpact-sci.org/</a></td>
</tr>
<tr>
<td>SB2.1</td>
<td>Temperature [Near] Surface</td>
<td>HadISDH.extremes v1.0.0.2022f</td>
<td><a href="https://catalogue.ceda.ac.uk/uuid/2d1613955e1b4cd1b156e5f3edbd7e66">https://catalogue.ceda.ac.uk/uuid/2d1613955e1b4cd1b156e5f3edbd7e66</a>, <a href="https://www.metoffice.gov.uk/hadobs/hadisdh/">https://www.metoffice.gov.uk/hadobs/hadisdh/</a></td>
</tr>
</tbody>
</table>

### Sidebar 2.2 Hunga Tonga–Hunga Ha‘apai eruption

<table>
<thead>
<tr>
<th>Subsection</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB2.2</td>
<td>Stratospheric Aerosol</td>
<td>Suomi National Polar-Orbiting Partnership OMPS Limb Profiler data.</td>
<td><a href="https://www.earthdata.nasa.gov/sensors/omps">https://www.earthdata.nasa.gov/sensors/omps</a></td>
</tr>
<tr>
<td>SB2.2</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Aura MLS</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS">https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS</a></td>
</tr>
<tr>
<td>SB2.2</td>
<td>Stratospheric Water Vapor</td>
<td>Aura MLS</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS">https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS</a></td>
</tr>
<tr>
<td>SB2.2</td>
<td>Temperature upper atmosphere</td>
<td>Aura MLS</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS">https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS</a></td>
</tr>
</tbody>
</table>
### Section 3b Sea Surface Temperature

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3b</td>
<td>Sea Surface Temperature</td>
<td>ERSSTv5</td>
<td><a href="https://doi.org/10.7289/V5T72FMN">https://doi.org/10.7289/V5T72FMN</a></td>
</tr>
<tr>
<td>3b</td>
<td>Sea Surface Temperature</td>
<td>HadSST4</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/hadsst4/">https://www.metoffice.gov.uk/hadobs/hadsst4/</a></td>
</tr>
<tr>
<td>3b</td>
<td>Sea Surface Temperature</td>
<td>NOAA Daily Optimum Interpolated Temperature (DOISST)</td>
<td><a href="https://doi.org/10.25921/RE9P-PTS7">https://doi.org/10.25921/RE9P-PTS7</a></td>
</tr>
</tbody>
</table>

### Section 3c Ocean Heat Content

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>Argo</td>
<td><a href="http://doi.org/10.17882/4218298916">http://doi.org/10.17882/4218298916</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argoa.ucsd.edu/rg_climatology.html">https://sio-argoa.ucsd.edu/rg_climatology.html</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>CLIVAR and Carbon Hydrographic Data Office</td>
<td><a href="https://cchdo.ucsd.edu/">https://cchdo.ucsd.edu/</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>IAP/CAS</td>
<td><a href="http://www.ocean.iap.ac.cn/pages/dataService/dataService.html">http://www.ocean.iap.ac.cn/pages/dataService/dataService.html</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>NCEI</td>
<td><a href="https://www.ncei.noaa.gov/access/global-ocean-heat-content/">https://www.ncei.noaa.gov/access/global-ocean-heat-content/</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Heat Content</td>
<td>PMEL/JPL/JIMAR</td>
<td><a href="http://oceans.pmel.noaa.gov">http://oceans.pmel.noaa.gov</a></td>
</tr>
<tr>
<td>3c</td>
<td>Ocean Salinity</td>
<td>Argo</td>
<td><a href="https://usgodae.org/argo/argo.html">https://usgodae.org/argo/argo.html</a></td>
</tr>
</tbody>
</table>

### Section 3d Salinity

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3d2</td>
<td>Ocean Salinity</td>
<td>Aquarius V3.0</td>
<td><a href="http://podaac.jpl.nasa.gov/aquarius">http://podaac.jpl.nasa.gov/aquarius</a></td>
</tr>
<tr>
<td>3d2</td>
<td>Ocean Salinity</td>
<td>Argo</td>
<td><a href="https://usgodae.org/argo/argo.html">https://usgodae.org/argo/argo.html</a></td>
</tr>
<tr>
<td>3d2</td>
<td>Ocean Salinity</td>
<td>SMAP</td>
<td><a href="https://podaac.jpl.nasa.gov/SMAP">https://podaac.jpl.nasa.gov/SMAP</a></td>
</tr>
<tr>
<td>3d2</td>
<td>Ocean Salinity</td>
<td>SMOS</td>
<td><a href="https://earth.esa.int/eogateway/missions/smos">https://earth.esa.int/eogateway/missions/smos</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>3d2</td>
<td>Ocean Salinity</td>
<td>World Ocean Atlas 2013</td>
<td><a href="www.nodc.noaa.gov/OC5/woa13/">link</a></td>
</tr>
<tr>
<td>3d3</td>
<td>Ocean Salinity</td>
<td>NCEI salinity anomaly</td>
<td><a href="https://www.ncei.noaa.gov/access/global-ocean-heat-content/">link</a></td>
</tr>
<tr>
<td>3d3</td>
<td>Ocean Salinity</td>
<td>World Ocean Atlas 2018</td>
<td><a href="www.nodc.noaa.gov/OC5/woa18/">link</a></td>
</tr>
</tbody>
</table>

### Section 3e Global ocean heat, freshwater, and momentum flux

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3e1</td>
<td>Air-sea fluxes (shortwave/longwave radiation)</td>
<td>CERES Energy Balanced and Filled version 4.2</td>
<td><a href="https://asdc.larc.nasa.gov/project/CERES/CERES_EBAF_Edition4.2">link</a></td>
</tr>
<tr>
<td>3e1</td>
<td>Air-sea fluxes (shortwave/longwave radiation)</td>
<td>CERES FLASHflux 4A product</td>
<td><a href="https://cmr.earthdata.nasa.gov/search/concepts/C1719147151-LARC_ASDC.html">link</a></td>
</tr>
<tr>
<td>3e1</td>
<td>Air-sea fluxes (latent heat/sensible heat)</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">link</a></td>
</tr>
<tr>
<td>3e2</td>
<td>Precipitation</td>
<td>Global Precipitation Climatology Project (GPCP) v2.3</td>
<td><a href="https://psl.noaa.gov/data/gridded/data.gpcp.html">link</a></td>
</tr>
<tr>
<td>3e2</td>
<td>Evaporation</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">link</a></td>
</tr>
<tr>
<td>3e3</td>
<td>Wind stress</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">link</a></td>
</tr>
</tbody>
</table>

### Section 3f Sea Level variability and change

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3f</td>
<td>Ocean Heat Content</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argu.ucsd.edu/rg_climatology.html">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Ocean Mass</td>
<td>GRACE/GRACE FO</td>
<td><a href="https://grace.jpl.nasa.gov/data/get-data">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>Argo</td>
<td><a href="https://usgodae.org/argo/argo.html">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>NASA MEaSURES</td>
<td><a href="https://podaac.jpl.nasa.gov/dataset/SEA_SURFACE_HEIGHT_ALT_GRIDS_L4_25ATS_5DAY_6THDEG_V_JPL2205">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level/Sea Surface Height</td>
<td>NASA Sea Level Change Program</td>
<td><a href="https://podaac.jpl.nasa.gov/dataset/MERGED_TP_J1_OSTM_OST_ALL_V51">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>NCEI steric sea level</td>
<td><a href="https://www.ncei.noaa.gov/access/global-ocean-heat-content/">link</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>NOAA Laboratory for Sea Level Altimetry</td>
<td><a href="www.star.nesdis.noaa.gov/sod/lsl/SeaLevelRise/LSA_SLR_timeseries.php">link</a></td>
</tr>
</tbody>
</table>
### Section 3f Sea Level / Sea Surface Height

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>Tide Gauge</td>
<td><a href="http://uhslc.soest.hawaii.edu/">http://uhslc.soest.hawaii.edu/</a></td>
</tr>
<tr>
<td>3f</td>
<td>Sea Level / Sea Surface Height</td>
<td>University of Texas Center for Space Research Gravity field</td>
<td><a href="https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC_L3_CSR_RL06_OCN_v04">https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC_L3_CSR_RL06_OCN_v04</a></td>
</tr>
</tbody>
</table>

### Section 3g Surface Currents

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3g</td>
<td>ocean currents</td>
<td>Global Drifter Program</td>
<td><a href="https://www.aoml.noaa.gov/phod/gdp/">https://www.aoml.noaa.gov/phod/gdp/</a></td>
</tr>
<tr>
<td>3g</td>
<td>ocean currents</td>
<td>Ocean Surface Current Analysis - Real time (OSCAR)</td>
<td><a href="https://www.esr.org/research/oscar/oscar-surface-currents/">https://www.esr.org/research/oscar/oscar-surface-currents/</a></td>
</tr>
<tr>
<td>3g3</td>
<td>ocean currents</td>
<td>Atlantic ocean monitoring</td>
<td><a href="https://www.aoml.noaa.gov/phod/altimetry/cvar/">https://www.aoml.noaa.gov/phod/altimetry/cvar/</a></td>
</tr>
</tbody>
</table>

### Section 3h Meridional Overturning Circulation and Heat Transport in the Atlantic Ocean

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>Atlantic Ship of Opportunity XBT</td>
<td><a href="https://www.aoml.noaa.gov/phod/goos/xbt_network/">https://www.aoml.noaa.gov/phod/goos/xbt_network/</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>Argo</td>
<td><a href="https://usgodae.org/argo/argo.html">https://usgodae.org/argo/argo.html</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>Florida Current transport</td>
<td><a href="https://www.aoml.noaa.gov/phod/floridacurrent/data_access.php">https://www.aoml.noaa.gov/phod/floridacurrent/data_access.php</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>Global Temperature and Salinity Profile Program (GTSPP)</td>
<td><a href="https://www.ncei.noaa.gov/products/global-temperature-and-salinity-profile-programme">https://www.ncei.noaa.gov/products/global-temperature-and-salinity-profile-programme</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>MOVE array</td>
<td><a href="http://www.oceansites.org/tma/move.html">http://www.oceansites.org/tma/move.html</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>OSNAP</td>
<td><a href="https://www.o-snap.org/">https://www.o-snap.org/</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>RAPID array</td>
<td><a href="https://rapid.ac.uk/rapidmoc/">https://rapid.ac.uk/rapidmoc/</a></td>
</tr>
<tr>
<td>3h</td>
<td>ocean currents</td>
<td>SAMBA</td>
<td><a href="http://www.oceansites.org/tma/samba.html">http://www.oceansites.org/tma/samba.html</a></td>
</tr>
</tbody>
</table>

### Section 3i Global Ocean Phytoplankton

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3i</td>
<td>Phytoplankton, Ocean Color</td>
<td>MODIS-Aqua</td>
<td><a href="https://oceancolor.gsfc.nasa.gov/reprocessing/">https://oceancolor.gsfc.nasa.gov/reprocessing/</a></td>
</tr>
</tbody>
</table>
### Section 3j Global Ocean Carbon Cycle

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>3j2</td>
<td>Ocean Carbon</td>
<td>SOCAT version 2022</td>
<td><a href="https://doi.org/10.25921/r7xa-bt92">https://doi.org/10.25921/r7xa-bt92</a></td>
</tr>
<tr>
<td>3j2</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2.1</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
<tr>
<td>3j2</td>
<td>Chlorophyll</td>
<td>GlobColour</td>
<td><a href="https://www.globcolour.info/">https://www.globcolour.info/</a></td>
</tr>
<tr>
<td>3j2</td>
<td>Winds [Near] Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>3j2</td>
<td>Ocean Salinity</td>
<td>Hadley Center EN4</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/en4/">https://www.metoffice.gov.uk/hadobs/en4/</a></td>
</tr>
<tr>
<td>3j3</td>
<td>Ocean Temperature</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argo.ucsd.edu/RG_Climatology.html">https://sio-argo.ucsd.edu/RG_Climatology.html</a></td>
</tr>
<tr>
<td>3j3</td>
<td>Ocean Salinity</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argo.ucsd.edu/RG_Climatology.html">https://sio-argo.ucsd.edu/RG_Climatology.html</a></td>
</tr>
</tbody>
</table>

### Sidebar 3.1 The 2020–22 triple-dip La Niña

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB3.1</td>
<td>Sea Surface Temperature</td>
<td>ERSSTv5</td>
<td><a href="https://doi.org/10.7289/V5T72FNM">https://doi.org/10.7289/V5T72FNM</a></td>
</tr>
<tr>
<td>SB3.1</td>
<td>Precipitation</td>
<td>NCEP/DOE Reanalysis 2</td>
<td><a href="https://www.cpc.ncep.noaa.gov/products/wesley/reanalysis2/">https://www.cpc.ncep.noaa.gov/products/wesley/reanalysis2/</a></td>
</tr>
<tr>
<td>SB3.1</td>
<td>Sea Surface Temperature</td>
<td>HadISST</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/hadisst/">https://www.metoffice.gov.uk/hadobs/hadisst/</a></td>
</tr>
</tbody>
</table>

### Sidebar 3.2 Tracking global ocean oxygen content

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB3.2</td>
<td>Ocean dissolved oxygen content</td>
<td>GLODAP v2</td>
<td><a href="https://www.ncei.noaa.gov/access/ocean-carbon-acidification-data-system/oceans/GLODAPv2_2022/">https://www.ncei.noaa.gov/access/ocean-carbon-acidification-data-system/oceans/GLODAPv2_2022/</a></td>
</tr>
<tr>
<td>SB3.2</td>
<td>Ocean dissolved oxygen content</td>
<td>GOBAI-O₂</td>
<td><a href="https://www.pmel.noaa.gov/gobai/">https://www.pmel.noaa.gov/gobai/</a></td>
</tr>
</tbody>
</table>
### Section 4b ENSO and the tropical Pacific

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4b</td>
<td>Sea Surface Temperature</td>
<td>ERSSTv5</td>
<td><a href="https://doi.org/10.7289/V5T72FNM">https://doi.org/10.7289/V5T72FNM</a></td>
</tr>
<tr>
<td>4b1</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2.1</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
<tr>
<td>4b1</td>
<td>Subsurface ocean temperature</td>
<td>Global Ocean Data Assimilation System (GODAS, Behringer, 2007)</td>
<td><a href="https://www.cpc.ncep.noaa.gov/products/GODAS/">https://www.cpc.ncep.noaa.gov/products/GODAS/</a></td>
</tr>
<tr>
<td>4b3</td>
<td>wind vectors/wind speed</td>
<td>NCEP NCAR reanalysis 1</td>
<td><a href="https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html">https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html</a></td>
</tr>
</tbody>
</table>

### Section 4c Tropical Intraseasonal Activity

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4c</td>
<td>wind velocity potential anomalies</td>
<td>Climate Forecast System Reanalysis (CFSR)</td>
<td><a href="https://climatedataguide.ucar.edu/climate-data/climate-forecast-system-reanalysis-cfsr">https://climatedataguide.ucar.edu/climate-data/climate-forecast-system-reanalysis-cfsr</a></td>
</tr>
</tbody>
</table>

### Section 4d Intertropical Convergence Zone

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4d1</td>
<td>Precipitation</td>
<td>Multisource weighted ensemble precipitation (MSWEP v2.8)</td>
<td><a href="https://www.gloh2o.org/mswep/">https://www.gloh2o.org/mswep/</a></td>
</tr>
<tr>
<td>4d2</td>
<td>Sea level pressure</td>
<td>NCEP NCAR reanalysis 1</td>
<td><a href="https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html">https://psl.noaa.gov/data/gridded/data.ncep.reanalysis.html</a></td>
</tr>
<tr>
<td>4d2</td>
<td>Precipitation</td>
<td>Integrated Multi-satellite Retrievals for GPM (IMERG)</td>
<td><a href="https://gpm.nasa.gov/data/imerg">https://gpm.nasa.gov/data/imerg</a></td>
</tr>
<tr>
<td>4d2</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2.1</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
</tbody>
</table>
### Section 4e Global Monsoon Summary

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4e</td>
<td>Precipitation</td>
<td>Global Precipitation Climatology Project (GPCP)</td>
<td><a href="https://www.ncei.noaa.gov/products/climate-data-records/precipitation-gpcp-monthly">https://www.ncei.noaa.gov/products/climate-data-records/precipitation-gpcp-monthly</a></td>
</tr>
<tr>
<td>4e</td>
<td>Sea Surface Temperature</td>
<td>ERSSTv5</td>
<td><a href="https://doi.org/10.7289/V5T72FNMS">https://doi.org/10.7289/V5T72FNMS</a></td>
</tr>
<tr>
<td>4e</td>
<td>Sea Surface Temperature</td>
<td>HadISST</td>
<td><a href="https://www.metoffice.gov.uk/hadobs/hadisst/">https://www.metoffice.gov.uk/hadobs/hadisst/</a></td>
</tr>
<tr>
<td>4e</td>
<td>Wind, [Near] Surface</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>4e</td>
<td>Wind, Upper Atmosphere</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>

### Section 4f Indian Ocean Dipole

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4f</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
</tbody>
</table>

### Section 4g Tropical Cyclones

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4g1, 4g5, 4g6, 4g7</td>
<td>Tropical Cyclone Data</td>
<td>International Best Track Archive for Climate Stewardship (IBTrACS)</td>
<td><a href="https://www.ncei.noaa.gov/products/international-best-track-archive">https://www.ncei.noaa.gov/products/international-best-track-archive</a></td>
</tr>
<tr>
<td>4g2</td>
<td>Tropical Cyclone Data</td>
<td>Hurdat2</td>
<td><a href="http://www.aoml.noaa.gov/hrd/hurdat/Data_Storm.html">www.aoml.noaa.gov/hrd/hurdat/Data_Storm.html</a></td>
</tr>
<tr>
<td>4g2, 4g4</td>
<td>Sea Surface Temperature</td>
<td>ERSSTv5</td>
<td><a href="https://doi.org/10.7289/V5T72FNMS">https://doi.org/10.7289/V5T72FNMS</a></td>
</tr>
<tr>
<td>4g2, 4g4</td>
<td>Wind, [Near] Surface</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>4g3, 4g5, 4g6</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
<tr>
<td>Sub-section</td>
<td>General Variable or Phenomenon</td>
<td>Specific dataset or variable</td>
<td>Source</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>4g3</td>
<td>Wind, [Near] Surface</td>
<td>Climate Forecast System Reanalysis (CFSR)</td>
<td><a href="https://climatedataguide.ucar.edu/climate-data/climate-forecast-system-reanalysis-cfsr">link</a></td>
</tr>
<tr>
<td>4g3, 4g5</td>
<td>Outgoing longwave radiation</td>
<td>HIRS OLR (Schreck et al. 2018)</td>
<td><a href="https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.ncdc:C00875">link</a></td>
</tr>
<tr>
<td>4g4</td>
<td>Tropical Cyclone Data</td>
<td>RSMC-Tokyo, JMA best-track data</td>
<td><a href="www.jma.go.jp/jma/jma-eng/jma-center/rsmc-hp-pub-eg/besttrack.html">link</a></td>
</tr>
<tr>
<td>4g5</td>
<td>Wind, [Near] Surface</td>
<td>Climate Forecast System Reanalysis (CFSR)</td>
<td><a href="https://climatedataguide.ucar.edu/climate-data/climate-forecast-system-reanalysis-cfsr">link</a></td>
</tr>
<tr>
<td>4g6</td>
<td>Temperature, [Near] Surface</td>
<td>GHCNDEX</td>
<td><a href="www.climdex.org/">link</a></td>
</tr>
<tr>
<td>4g6</td>
<td>Wind, [Near] Surface</td>
<td>Climate Forecast System Reanalysis (CFSR)</td>
<td><a href="https://climatedataguide.ucar.edu/climate-data/climate-forecast-system-reanalysis-cfsr">link</a></td>
</tr>
<tr>
<td>4g8</td>
<td>Tropical Cyclone Data</td>
<td>Southwest Pacific Enhanced Archive of Tropical Cyclones (SPEArTC)</td>
<td><a href="http://apdrc.soest.hawaii.edu/projects/speartc">link</a></td>
</tr>
</tbody>
</table>

### Sidebar 4.1 Hurricanes Fiona and Ian: A pair of impactful North Atlantic major hurricanes

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB4.1</td>
<td>Floods</td>
<td>United States Geological Survey Flood Event Viewer</td>
<td><a href="https://stn.wim.usgs.gov/FEV/">link</a></td>
</tr>
</tbody>
</table>

### Sidebar 4.2 Tropical cyclone contributions during the 2022 North American Monsoon

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB4.2</td>
<td>Precipitation</td>
<td>Parameter-elevation Relationships on Independent Slopes Model (PRISM)</td>
<td><a href="https://prism.oregonstate.edu/">link</a></td>
</tr>
</tbody>
</table>
Chapter 5: The Arctic – Datasets and Sources

### Section 5b Surface Air Temperature

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5b2</td>
<td>Temperature, [Near] Surface</td>
<td>NASA GISTEMP v4</td>
<td><a href="https://data.giss.nasa.gov/gistemp/">https://data.giss.nasa.gov/gistemp/</a></td>
</tr>
<tr>
<td>5b3</td>
<td>Pressure, Sea Level or Near-Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>5b3</td>
<td>Precipitation</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>

### Section 5c Precipitation

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5c2, 5c3, 5c4</td>
<td>Precipitation</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>5c3</td>
<td>Precipitation</td>
<td>GPCC</td>
<td><a href="https://opendata.dwd.de/climate_environment/GPCC/html/download_gate.html">https://opendata.dwd.de/climate_environment/GPCC/html/download_gate.html</a></td>
</tr>
</tbody>
</table>

### Section 5d Sea Surface Temperature

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5d</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
<tr>
<td>5d</td>
<td>Sea Ice Concentration</td>
<td>NOAA NSIDC Climate Data Record of Passive Microwave Sea Ice Concentration, Version 4</td>
<td><a href="https://nsidc.org/data/g02202">https://nsidc.org/data/g02202</a></td>
</tr>
<tr>
<td>5d</td>
<td>Sea Ice Concentration</td>
<td>NOAA/NSIDC Climate Data Record of Passive Microwave Sea Ice Concentration, Version 2</td>
<td><a href="https://nsidc.org/data/g10016">https://nsidc.org/data/g10016</a></td>
</tr>
</tbody>
</table>
### Section 5e Sea Ice

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5e1</td>
<td>Sea Ice Extent</td>
<td>NSIDC Sea Ice Extent</td>
<td><a href="https://nsidc.org/data/g02135">https://nsidc.org/data/g02135</a></td>
</tr>
<tr>
<td>5e2</td>
<td>Sea Ice Thickness</td>
<td>Cryosat-2/SMOS</td>
<td><a href="https://earth.esa.int/eogateway/catalog/smos-cryosat-l4-sea-ice-thickness">https://earth.esa.int/eogateway/catalog/smos-cryosat-l4-sea-ice-thickness</a></td>
</tr>
<tr>
<td>5e2</td>
<td>Sea Ice Thickness</td>
<td>ICESat-2</td>
<td><a href="https://icesat-2.gsc.nasa.gov/icesat-2-data">https://icesat-2.gsc.nasa.gov/icesat-2-data</a></td>
</tr>
</tbody>
</table>

### Section 5f Greenland Ice Sheet

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5f</td>
<td>Albedo</td>
<td>MODIS (Greenland)</td>
<td><a href="https://nsidc.org/data/MODGRNLD/versions/1">https://nsidc.org/data/MODGRNLD/versions/1</a></td>
</tr>
<tr>
<td>5f</td>
<td>Glacier Ablation</td>
<td>PROMICE Glacier Front Line (Greenland)</td>
<td><a href="https://doi.org/10.22008/promice/data/calving_front_lines">https://doi.org/10.22008/promice/data/calving_front_lines</a></td>
</tr>
<tr>
<td>5f</td>
<td>Glacier Mass, Area or Volume</td>
<td>Gravity Recovery and Climate Experiment Follow-on (GRACE-FO)</td>
<td><a href="https://grace.jpl.nasa.gov/data/get-data/">https://grace.jpl.nasa.gov/data/get-data/</a></td>
</tr>
<tr>
<td>5f</td>
<td>Air temperature</td>
<td>DMI/PROMICE Weather Stations</td>
<td><a href="http://polarportal.dk/en/weather/historisk-vejr/#:~:text=DMI%20has%20a%20number%20of%20observations%20spanning%20centuries%20are%20homogeneous">http://polarportal.dk/en/weather/historisk-vejr/#:~:text=DMI%20has%20a%20number%20of%20observations%20spanning%20centuries%20are%20homogeneous</a>.</td>
</tr>
<tr>
<td>5f</td>
<td>Ice Sheet Melt</td>
<td>Special Sensor Microwave Imager/Sounder (SSMIS)</td>
<td><a href="https://nsidc.org/data/nsidc-0001">https://nsidc.org/data/nsidc-0001</a></td>
</tr>
<tr>
<td>5f</td>
<td>Ice Sheet Albedo</td>
<td>Moderate Resolution Imaging Spectroradiometer (MODIS)</td>
<td><a href="https://nsidc.org/data/MODGRNLD/versions/1">https://nsidc.org/data/MODGRNLD/versions/1</a></td>
</tr>
<tr>
<td>5f</td>
<td>Ice Sheet Albedo</td>
<td>Sentinel-3</td>
<td><a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-albedo?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-albedo?tab=overview</a></td>
</tr>
<tr>
<td>5f</td>
<td>Ice Sheet Discharge</td>
<td>Ice Discharge (Greenland)</td>
<td><a href="https://doi.org/10.22008/promice/data/ice_discharge/d/v02">https://doi.org/10.22008/promice/data/ice_discharge/d/v02</a></td>
</tr>
<tr>
<td>5f</td>
<td>Ice Sheet Surface Mass Balance</td>
<td>Modèle Atmosphérique Régionale surface mass</td>
<td><a href="https://mar.cnrs.fr/">https://mar.cnrs.fr/</a></td>
</tr>
</tbody>
</table>
### Section 5g Terrestrial Snow Cover

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5g</td>
<td>Snow Mass</td>
<td>GRACE / GRACE-FO</td>
<td><a href="https://grace.jpl.nasa.gov/data/get-data/">https://grace.jpl.nasa.gov/data/get-data/</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>Crocus Snowpack Model</td>
<td><a href="http://www.umr-cnrm.fr/spip.php?article265">http://www.umr-cnrm.fr/spip.php?article265</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>MERRA-2</td>
<td><a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>NOAA Interactive Multi-sensor Snow and Ice Mapping System (Snow Cover Duration)</td>
<td><a href="https://usicecenter.gov/Products/ImsHome">https://usicecenter.gov/Products/ImsHome</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>Northern Hemisphere (NH) Snow Cover Extent (SCE), Version 1</td>
<td><a href="http://doi.org/10.7289/V5N014G9">http://doi.org/10.7289/V5N014G9</a></td>
</tr>
<tr>
<td>5g</td>
<td>Snow Properties</td>
<td>Snow CCI</td>
<td><a href="http://snow-cci.enveo.at/">http://snow-cci.enveo.at/</a></td>
</tr>
</tbody>
</table>

### Section 5h Arctic river discharge

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5h</td>
<td>River Discharge</td>
<td>ArcticGRO Discharge</td>
<td><a href="https://arcticgreatrivers.org/">https://arcticgreatrivers.org/</a></td>
</tr>
</tbody>
</table>

### Section 5i Permafrost

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5i1</td>
<td>Permafrost</td>
<td>Global Terrestrial Network for Permafrost (GTN-P)</td>
<td><a href="http://gtnpdatabase.org/">http://gtnpdatabase.org/</a></td>
</tr>
<tr>
<td>5i1</td>
<td>Permafrost</td>
<td>Permafrost Temperature</td>
<td><a href="http://permafrost.gi.alaska.edu/sites_map">http://permafrost.gi.alaska.edu/sites_map</a></td>
</tr>
<tr>
<td>5i1</td>
<td>Temperature, [Near] Surface</td>
<td>ERAS Copernicus Climate Store</td>
<td><a href="https://cds.climate.copernicus.eu">https://cds.climate.copernicus.eu</a></td>
</tr>
<tr>
<td>5i2</td>
<td>Permafrost</td>
<td>CALM Active Layer Thickness</td>
<td>www2.gwu.edu/~calm/</td>
</tr>
</tbody>
</table>
### Section 5j Tundra Greenness

<table>
<thead>
<tr>
<th>Subsection</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vegetative Index</td>
<td>MODIS Normalized Difference Vegetative Index (NDVI)</td>
<td><a href="https://modis.gsfc.nasa.gov/data/dataprod/mod13.php">Link</a></td>
</tr>
</tbody>
</table>

### Section 5k Ozone and UV Radiation

<table>
<thead>
<tr>
<th>Subsection</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5k1</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Aura OMI/MLS</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets/ML2O3_004/summary">Link</a></td>
</tr>
<tr>
<td>5k1</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Bodeker Scientific</td>
<td><a href="http://www.bodekerscientific.com/data/total-column-ozone">Link</a></td>
</tr>
<tr>
<td>5k2</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>OMTO3</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets/OMTO3_003/summary">Link</a></td>
</tr>
</tbody>
</table>
### Chapter 6: Antarctica and the Southern Ocean – Datasets and Sources

#### Section 6b Atmospheric circulation and surface observations

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6b</td>
<td>Modes of Variability</td>
<td>Marshall Southern Annular Mode Index</td>
<td><a href="http://www.nerc-bas.ac.uk/icd/gjma/sam.html">http://www.nerc-bas.ac.uk/icd/gjma/sam.html</a></td>
</tr>
<tr>
<td>6b</td>
<td>Temperature, [Near] Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>6b</td>
<td>Geopotential Height</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>6b</td>
<td>Pressure, Sea Level or Near-Surface</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>6b</td>
<td>Pressure, Sea Level or Near-Surface</td>
<td>University of Wisconsin Madison automated weather stations - Antarctic Meteorological Research and Data Center</td>
<td><a href="https://amrdcdata.ssec.wisc.edu">https://amrdcdata.ssec.wisc.edu</a></td>
</tr>
<tr>
<td>6b</td>
<td>Temperature, [Near] Surface</td>
<td>University of Wisconsin Madison automated weather stations - Antarctic Meteorological Research and Data Center</td>
<td><a href="https://amrdcdata.ssec.wisc.edu">https://amrdcdata.ssec.wisc.edu</a></td>
</tr>
<tr>
<td>6b</td>
<td>Temperature, Upper Atmosphere</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>6b</td>
<td>Wind, Upper Atmosphere</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>

#### Section 6c Ice-sheet surface mass balance

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6c</td>
<td>Ice-sheet surface mass balance</td>
<td>ERAS</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>

#### Section 6d Ice-sheet melt extent and duration

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6d</td>
<td>Ice-Sheet Surface Melt</td>
<td>DMSP-SSMIS</td>
<td><a href="https://nsidc.org/data/nsidc-0001/versions/6">https://nsidc.org/data/nsidc-0001/versions/6</a></td>
</tr>
<tr>
<td>6d</td>
<td>Sea Ice Extent / Area / Concentration</td>
<td>Nimbus-7 SMMR Sea Ice Concentration</td>
<td><a href="https://nsidc.org/data/nsidc-0007">https://nsidc.org/data/nsidc-0007</a></td>
</tr>
</tbody>
</table>
### Section 6e Ice-sheet Mass Balance

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6e</td>
<td>Ice-Sheet Surface Height</td>
<td>ATLAS/ICESat-2 Land Height</td>
<td><a href="https://nsidc.org/data/atl06_versions/5">https://nsidc.org/data/atl06_versions/5</a></td>
</tr>
<tr>
<td>6e</td>
<td>Ice-Sheet Mass</td>
<td>GRACE - GRACE FO CRI</td>
<td><a href="https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC-GRFO_MASCON_CRI_GRID_RLO6_V2">https://podaac.jpl.nasa.gov/dataset/TELLUS_GRAC-GRFO_MASCON_CRI_GRID_RLO6_V2</a></td>
</tr>
<tr>
<td>6e</td>
<td>Ice-Sheet Surface Height</td>
<td>ICESat-2</td>
<td><a href="https://icesat-2.gsfc.nasa.gov/">https://icesat-2.gsfc.nasa.gov/</a></td>
</tr>
</tbody>
</table>

### Section 6f Sea Ice Extent, Concentration, and Seasonality

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6f</td>
<td>Sea Ice Duration</td>
<td>Nimbus-7 SMMR and DMSP SSM/I (Bootstrap)</td>
<td><a href="https://nsidc.org/data/nsidc-0079_versions/3">https://nsidc.org/data/nsidc-0079_versions/3</a></td>
</tr>
<tr>
<td>6f</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2.1</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
</tbody>
</table>

### Section 6g Southern Ocean

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6g1</td>
<td>Sea Surface Temperature</td>
<td>NOAA Optimum Interpolation SST (OISST) v2</td>
<td><a href="https://www.ncei.noaa.gov/products/optimum-interpolation-sst">https://www.ncei.noaa.gov/products/optimum-interpolation-sst</a></td>
</tr>
<tr>
<td>6g1, 6g2, 6g3</td>
<td>Ocean Heat Content</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argof.ucsd.edu/rg_climatology.html">https://sio-argof.ucsd.edu/rg_climatology.html</a></td>
</tr>
<tr>
<td>6g1</td>
<td>Sea Surface Salinity</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argof.ucsd.edu/rg_climatology.html">https://sio-argof.ucsd.edu/rg_climatology.html</a></td>
</tr>
<tr>
<td>6g1</td>
<td>Mixed Layer Depth</td>
<td>Argo monthly climatology</td>
<td><a href="https://sio-argof.ucsd.edu/rg_climatology.html">https://sio-argof.ucsd.edu/rg_climatology.html</a></td>
</tr>
<tr>
<td>6g3</td>
<td>Surface Heat flux</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>6g3</td>
<td>Dissolved Oxygen</td>
<td>Argo profiling floats</td>
<td><a href="https://argo.ucsd.edu/data/">https://argo.ucsd.edu/data/</a></td>
</tr>
<tr>
<td>6g3</td>
<td>Ocean Chlorophyll</td>
<td>GlobColour</td>
<td><a href="https://doi.org/10.48670/moi-00281">https://doi.org/10.48670/moi-00281</a></td>
</tr>
</tbody>
</table>
### Section 6h 2022 Antarctic Ozone Hole

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>6h</td>
<td>Cloud Volume</td>
<td>CALIPSO</td>
<td><a href="http://www-calipso.larc.nasa.gov">http://www-calipso.larc.nasa.gov</a></td>
</tr>
<tr>
<td>6h</td>
<td>Ozone, Total Column and Stratospheric</td>
<td>Aura MLS</td>
<td><a href="https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS">https://disc.gsfc.nasa.gov/datasets?page=1&amp;source=AURA%20MLS</a></td>
</tr>
<tr>
<td>6h</td>
<td>Ozone, Lower Stratosphere</td>
<td>OzoneSonde</td>
<td><a href="https://gml.noaa.gov/dv/spo_oz/">https://gml.noaa.gov/dv/spo_oz/</a></td>
</tr>
</tbody>
</table>

### Section SB6.1 The Antarctic Heat Wave of March 2022

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB6.1</td>
<td>Ice-Sheet Surface Melt</td>
<td>DMSP-SSMIS</td>
<td><a href="https://nsidc.org/data/nsidc-0001/versions/6">https://nsidc.org/data/nsidc-0001/versions/6</a></td>
</tr>
<tr>
<td>SB6.1</td>
<td>Temperature, [Near] Surface</td>
<td>University of Wisconsin Madison automated weather stations - Antarctic Meteorological Research and Data Center</td>
<td><a href="https://amrdcdata.ssec.wisc.edu">https://amrdcdata.ssec.wisc.edu</a></td>
</tr>
<tr>
<td>SB6.1</td>
<td>Water Vapor Transport</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td>SB6.1</td>
<td>Geopotential Height</td>
<td>MERRA-2</td>
<td><a href="http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/">http://gmao.gsfc.nasa.gov/reanalysis/MERRA-2/</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Ice Extent (photographic)</td>
<td>LANDSAT-8</td>
<td><a href="https://www.usgs.gov/landsat-missions/landsat-data-access">https://www.usgs.gov/landsat-missions/landsat-data-access</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Sea Ice Concentration</td>
<td>AMSR-2</td>
<td><a href="https://seaice.uni-bremen.de/sea-ice-concentration/amsre-amsr2/">https://seaice.uni-bremen.de/sea-ice-concentration/amsre-amsr2/</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Wave propagation direction</td>
<td>WaveWatch III</td>
<td><a href="https://polar.ncep.noaa.gov/waves/ensemble/download.shtml">https://polar.ncep.noaa.gov/waves/ensemble/download.shtml</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Wave height</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td></td>
<td>Ice-sheet surface mass balance</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>
### SB6.2 Larsen B Fast Ice Breakout and Initial Glacial Response

<table>
<thead>
<tr>
<th>Sub-section</th>
<th>General Variable or Phenomenon</th>
<th>Specific dataset or variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB6.2</td>
<td>Ice Extent (photographic)</td>
<td>LANDSAT-8</td>
<td><a href="https://www.usgs.gov/landsat-missions/landsat-data-access">https://www.usgs.gov/landsat-missions/landsat-data-access</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Sea Ice Concentration</td>
<td>AMSR-2</td>
<td><a href="https://seaice.uni-bremen.de/sea-ice-concentration/amsre-amsr2/">https://seaice.uni-bremen.de/sea-ice-concentration/amsre-amsr2/</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Wave propagation direction</td>
<td>WaveWatch III</td>
<td><a href="https://polar.ncep.noaa.gov/waves/ensemble/download.shtml">https://polar.ncep.noaa.gov/waves/ensemble/download.shtml</a></td>
</tr>
<tr>
<td>SB6.2</td>
<td>Wave height</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
<tr>
<td></td>
<td>Ice-sheet surface mass balance</td>
<td>ERA5</td>
<td><a href="https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5">https://www.ecmwf.int/en/forecasts/datasets/reanalysis-datasets/era5</a></td>
</tr>
</tbody>
</table>