ACCESS-BN: single-level "group1" fields

A number of raw and post-processed NWP products are available as outputs from the Australian Community Climate Earth-System Simulator (ACCESS) suite of Numerical Weather Prediction models which are run routinely by the Bureau National Operations Centre (BNOC). This document describes the content of the ACCESS-C BRISBANE (version APS1) IDY25402.group1.slv.YYYYMMDDHH.HHH.surface series of products.

For background information about ACCESS please refer to the top-level ACCESS NWP technical data documentation page.

If you require further information or assistance about ACCESS NWP products contact the Bureau's Registered User Services section.

Model summary

ACCESS-C BRISBANE covers the South-East QLD domain, has a resolution of about 4 km and is run four times per day (00Z, 06Z, 12Z & 18Z basetimes) out to a forecast hour (FHR) of +36. This model is nested in the ACCESS-R model and consists of only a forecast component.

NWP data filename convention

All NWP files in this product series have names that conform to the following convention:

IDY25402.group1.slv.YYYYMMDDHH.HHH.surface.grb2 or IDY25402.group1.slv.YYYYMMDDHH.HHH.surface.nc4

where

YYYYMMDDHH: Base-date of model run in UTC time. YYYY = year, MM = month, DD = day, HH = hour
HHH: Forecast hour. A FHR of 000 is the analysis time-step.

Horizontal grid geometries

<table>
<thead>
<tr>
<th>Resolution [Lon x Lat]</th>
<th>Domain limits [W to E, N to S (Lon x Lat grid points)]</th>
<th>Parameters [NC Vars]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.036 by 0.036</td>
<td>148.000 to 156.028, -31.000 to -22.036 (224 x 250)</td>
<td>All</td>
</tr>
</tbody>
</table>

Please note that

- Latitude values in GRIB and NetCDF files are ordered North to South while longitude values are ordered West to East.
- Longitudes always lie in the range 0.0 to 360.0 degrees. Longitudes can be transformed to lie between -180 and +180 degrees by subtracting 360 degrees from any longitude values greater than 180.
**Time steps**

Forecast hours of single-level fields:

0 to 36 by 1

**Parameters**

The following fields are included in this product series. Note that the "G2 d.c.n" table column refers to a field's GRIB2 'discipline','parameterCategory','parameterNumber' metadata. For more information see [GRIB2 format notes](#).

### Single-level fields

<table>
<thead>
<tr>
<th>G2 d.c.n</th>
<th>NetCDF var</th>
<th>Steps</th>
<th>G2 Units</th>
<th>NC Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2.2</td>
<td>u10</td>
<td>All</td>
<td>m s⁻¹</td>
<td>m s⁻¹</td>
<td>10m wind u component</td>
</tr>
<tr>
<td>0.2.3</td>
<td>v10</td>
<td>All</td>
<td>m s⁻¹</td>
<td>m s⁻¹</td>
<td>10m wind v component</td>
</tr>
<tr>
<td>0.1.8</td>
<td>accum_prct</td>
<td>All</td>
<td>kg m⁻²</td>
<td>kg m⁻²</td>
<td>Accumulated precipitation</td>
</tr>
<tr>
<td>0.3.1</td>
<td>mslp</td>
<td>All</td>
<td>Pa</td>
<td>Pa</td>
<td>Mean sea level pressure</td>
</tr>
<tr>
<td>0.0.6</td>
<td>dewpt_scrn</td>
<td>All</td>
<td>K</td>
<td>K</td>
<td>Screen level dewpoint temperature</td>
</tr>
<tr>
<td>0.0.4</td>
<td>tmax_scrn</td>
<td>All</td>
<td>K</td>
<td>K</td>
<td>Screen level max temperature</td>
</tr>
<tr>
<td>0.0.5</td>
<td>tmin_scrn</td>
<td>All</td>
<td>K</td>
<td>K</td>
<td>Screen level min temperature</td>
</tr>
<tr>
<td>0.1.1</td>
<td>rh2m</td>
<td>All</td>
<td>%</td>
<td>%</td>
<td>Screen level relative humidity</td>
</tr>
<tr>
<td>0.0.0</td>
<td>temp_scrn</td>
<td>All</td>
<td>K</td>
<td>K</td>
<td>Screen level temperature</td>
</tr>
<tr>
<td>0.3.0</td>
<td>sfc.pres</td>
<td>All</td>
<td>Pa</td>
<td>Pa</td>
<td>Surface pressure</td>
</tr>
<tr>
<td>0.0.0</td>
<td>sfc_temp</td>
<td>All</td>
<td>K</td>
<td>K</td>
<td>Surface temperature</td>
</tr>
<tr>
<td>0.6.1</td>
<td>ttl_cld</td>
<td>All</td>
<td>%</td>
<td>1</td>
<td>Total cloud cover</td>
</tr>
</tbody>
</table>

**Explanation of steps column terms**

- **All**: Parameter available at all time-steps
- **fhr...**: Parameter available from fhr onward

**Notes on specific NWP file-formats**

For technical notes about the GRIB2 encoding of ACCESS data, please refer to [GRIB2 format notes](#). For technical notes about the NetCDF4 encoding of ACCESS data, please refer to [NetCDF format notes](#).

**Appendix A - Extended Field Descriptions**

**Extended description of single-level fields**

<table>
<thead>
<tr>
<th>G2 d.c.n</th>
<th>NetCDF var</th>
<th>Detailed description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2.2</td>
<td>u10</td>
<td>Zonal (U) component of the wind velocity at 10m above-ground-level. [m s⁻¹]</td>
</tr>
<tr>
<td>0.2.3</td>
<td>v10</td>
<td>Meridional (V) component of the wind velocity at 10m above-ground-level. [m s⁻¹]</td>
</tr>
<tr>
<td>0.1.8</td>
<td>accum_prct</td>
<td>Accumulated total precipitation amount at the surface. This is the sum of the large scale rainfall, convective rainfall and snowfall at the surface. [kg m⁻²]</td>
</tr>
<tr>
<td>0.3.1</td>
<td>mslp</td>
<td>Atmospheric pressure at mean sea level. [Pa]</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Units</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>0.0.6</td>
<td>dewpt_scrn</td>
<td>Dewpoint temperature at 1.5m above ground level (screen level). [K]</td>
</tr>
<tr>
<td>0.0.4</td>
<td>tmax_scrn</td>
<td>Maximum atmospheric air temperature at 1.5m above ground-level (screen level). [K]</td>
</tr>
<tr>
<td>0.0.5</td>
<td>tmin_scrn</td>
<td>Minimum atmospheric air temperature at 1.5m above ground-level (screen level). [K]</td>
</tr>
<tr>
<td>0.1.1</td>
<td>rh2m</td>
<td>Relative humidity at 1.5m above-ground-level (screen level). Calculated as 100*water_vapour_pressure/saturation_partial_pressure_of_water_vapour where the the saturation partial pressure of water vapour represents the saturation vapour pressure over liquid water for temperatures above the triple point, over ice for temperatures 20 degrees below the triple point, and a linear combination of the two for temperatures in-between. [%]</td>
</tr>
<tr>
<td>0.0.0</td>
<td>temp_scrn</td>
<td>Atmospheric temperature at 1.5m above ground level (screen level). Calculated by integrating the similarity equations from the surface to 1.5m. [K]</td>
</tr>
<tr>
<td>0.3.0</td>
<td>sfc_pres</td>
<td>Atmospheric pressure at the surface. [Pa]</td>
</tr>
<tr>
<td>0.0.0</td>
<td>sfc_temp</td>
<td>Temperature of the land or sea/sea-ice surface. On land points this is the surface &quot;skin&quot; temperature. On ice-free sea points it is the temperature of the sea surface, and on sea points with ice it is a gridbox mean given by: [(ice fraction)<em>(temperature of top ice layer computed by the atmosphere surface/boundary layer scheme)] + [(1 - ice fraction)</em>(freezing point of sea water)]. [K]</td>
</tr>
<tr>
<td>0.6.1</td>
<td>ttl_cld</td>
<td>Total cloud coverage calculated with a maximum-random overlap assumption. [1]</td>
</tr>
</tbody>
</table>

Please note:

- Fields in the above tables are listed in the same order as shown in the Parameters section of this document.
- Units in the above table refer to NetCDF fields. In some cases fields were scaled/offset to convert to SI units for WMO GRIB2 compliance.
- The nature of fields can not always be deduced easily from their NetCDF variable names. It is always safest to refer to the detailed description of a parameter.
- All accumulated fields are accumulated from the start of the model assimilation window. Hence any of these fields can be non-zero at the model base-time (which is a time-step at the center of the assimilation window).
- Maximum and minimum screen-level temperatures represent a maximum/minimum value over the period from the last model output time-step to the field's nominal forecast-hour.