ACCESS-G: single-level "prec" 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-G (version APS1) IDY25000.prec.surf.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-G covers a global domain, has a resolution of about 40 km and is run four times per day (00Z, 06Z, 12Z & 18Z basetimes) out to a forecast hour (FHR) of +240. This model consists of both an assimilation and forecast component.

NWP data filename convention

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

IDY25000.prec.surf.YYYYMMDDHH.HHH.surface.grb2 or IDY25000.prec.surf.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>Variant [IDY code]</th>
<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>IDY25000</td>
<td>0.562 by 0.375</td>
<td>0.000 to 359.437, -90.000 to 90.000 (640 x 481)</td>
<td>All</td>
</tr>
<tr>
<td>IDY25001</td>
<td>0.562 by 0.375</td>
<td>95.062 to 169.875, -54.750 to 4.875 (134 x 160)</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 240 by 3

### 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>0.1.8</td>
<td>accum_prcp</td>
<td>All</td>
<td>kg m-2</td>
<td>kg m-2</td>
<td>Accumulated precipitation</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>0.1.8</td>
<td>accum_prcp</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>
</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).