

TEMPLATE 5: Describe Coverage Response

http://macc.icg.kfa-juelich.de:58080/MACC_Global_Forecast_Daily?service=WCS&version=1.1.2&Request=DescribeCoverage&identifiers=MACC_20120825

```
<CoverageDescriptions>
  <CoverageDescription>
    <ows11:Title>Reprocessed MACC daily forecast</ows11:Title>
    <ows11:Abstract/>
    <Identifier>MACC_20120825</Identifier>
    <ows11:Metadata>
      <cf:CoverageMetadata>
        <cf:Conventions>CF-1.5</cf:Conventions>
        <cf:history>Sun Aug 26 00:45:03 2012: cdo -f nc copy ... </cf:history>
        <cf:institution>Forschungszentrum Juelich GmbH</cf:institution>
        <cf:references>Juelich MACC WCS server: http://macc.icg.kfa-
juelich.de:58080/MACC_Global_Forecast_Daily?service=WCS&Request=getcapabilities;MACC project
web site: http://www.gmes-atmosphere.eu/;model description: J. Flemming et al., GMD 2008; Stein
et al., J. Integr. Environ. Sci. 2012</cf:references>
        <cf:source>IFS-CY37R3 (expid: fnyp), MOZART-3.5</cf:source>
        <cf:user_defined>
          <cf:attribute name="author">Olaf Stein</cf:attribute>
          <cf:attribute name="contact">o.stein@fz-juelich.de</cf:attribute>
          <cf:attribute name="project_id">MACC</cf:attribute>
        </cf:user_defined>
      </cf:CoverageMetadata>
    </ows11:Metadata>
    <Domain>
      <SpatialDomain>
        <ows11:BoundingBox crs="urn:ogc:def:crs:EPSG::4326" dimensions="2">
          <ows11:LowerCorner>-90.0000 +0.0000</ows11:LowerCorner>
          <ows11:UpperCorner>+90.0000 +358.8750</ows11:UpperCorner>
        </ows11:BoundingBox>
        <ows11:BoundingBox crs="urn:ogc:def:crs:OGC:2:84" dimensions="2">
          <ows11:LowerCorner>+0.0000 -90.0000</ows11:LowerCorner>
          <ows11:UpperCorner>+358.8750 +90.0000</ows11:UpperCorner>
        </ows11:BoundingBox>
        <ows11:WGS84BoundingBox crs="urn:ogc:def:crs:OGC:2:84">
          <ows11:LowerCorner>+0.0000 -90.0000</ows11:LowerCorner>
          <ows11:UpperCorner>+358.8750 +90.0000</ows11:UpperCorner>
        </ows11:WGS84BoundingBox>
        <GridCRS>
          <GridBaseCRS>urn:ogc:def:crs:OGC:2:84</GridBaseCRS>
          <GridType>urn:ogc:def:method:WCS:1.1:2dSimpleGrid</GridType>
          <GridOrigin>+0.0000 -90.0000</GridOrigin>
          <GridOffsets>+1.1250 +1.1321</GridOffsets>
          <GridCS>urn:ogc:def:cs:OGC:0.0:Grid2dSquareCS</GridCS>
        </GridCRS>
      </SpatialDomain>
      <TemporalDomain>
        <gml:timePosition>2012-08-25T03:00:00Z</gml:timePosition>
        <gml:timePosition>2012-08-25T06:00:00Z</gml:timePosition>
      </TemporalDomain>
    </Domain>
  </CoverageDescription>
</CoverageDescriptions>
```

```

    <gml:timePosition>2012-08-25T09:00:00Z</gml:timePosition>
    <gml:timePosition>2012-08-25T12:00:00Z</gml:timePosition>
    ...1
  </TemporalDomain>
</Domain>
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  <Field>
    <ows11:Title>hybrid A coefficient at layer midpoints</ows11:Title>
    <Identifier>a</Identifier>
    <Definition>
      <ows11:AnyValue/>
      <ows11:DataType>float</ows11:DataType>
      <ows11:UOM>1</ows11:UOM>
      <ows11:Metadata>
        <cf:FieldMetadata>
          <cf:user_defined>
            <cf:attribute name="bounds">a_bnds</cf:attribute>
          </cf:user_defined>
        </cf:FieldMetadata>
      </ows11:Metadata>
    </Definition>
    <NullValue>nan</NullValue>
    <InterpolationMethods>
      <Default>none</Default>
    </InterpolationMethods>
    <Axis identifier="lev">3
      <AvailableKeys>
        <Key>0.998815000057</Key>
        <Key>0.995861291885</Key>
        <Key>0.991510748863</Key>
        <Key>0.985347926617</Key>
        ...
      </AvailableKeys>
      <ows11:DataType>float</ows11:DataType>
      <ows11:UOM>1</ows11:UOM>
      <ows11:Metadata>
        <cf:AxisMetadata>
          <cf:axis positive="up">Z</cf:axis>
          <cf:formula_terms>p0: p0 a: a b: b ps: ps</cf:formula_terms>
          <cf:standard_name>atmosphere_hybrid_sigma_pressure_coordinate
          </cf:standard_name>
          <cf:user_defined>
            <cf:attribute name="formula">p(n,k,j,i) = a(k)*p0 + b(k)*ps(n,j,i)
            </cf:attribute>
          </cf:user_defined>
        </cf:AxisMetadata>
      </ows11:Metadata>
    </Axis>
  </Field>
</Range>

```

¹ Note that time position may be in the future, for example in a forecast simulation

² OGC term for „variable“

³ Up to WCS 1.1.2, additional axes (here: vertical coordinate) need to be defined for each field. The cf attributes help to define the meaning of an axis

```

</Field>
...
<Field>
  <ows11:Title>formaldehyde</ows11:Title>
  <Identifier>vmr_ch2o</Identifier>
  <Definition>
    <ows11:AnyValue/>
    <ows11:DataType>float</ows11:DataType>
    <ows11:UOM>1</ows11:UOM>
    <ows11:Metadata>
      <cf:FieldMetadata>
        <cf:standard_name>mole_fraction_of_formaldehyde_in_air
        </cf:standard_name>
        <cf:user_defined>
          <cf:attribute name="original_name">CH2O</cf:attribute>
        </cf:user_defined>
      </cf:FieldMetadata>
    </ows11:Metadata>
  </Definition>
  <NullValue>nan</NullValue>
  <InterpolationMethods>
    <Default>none</Default>
  </InterpolationMethods>
  <Axis identifier="lev">
    <AvailableKeys>
      <Key>0.998815000057</Key>
      <Key>0.995861291885</Key>
      ...
    </AvailableKeys>
    <ows11:DataType>float</ows11:DataType>
    <ows11:UOM>1</ows11:UOM>
    ...
  </Axis>
</Field>
...
</Range>
<SupportedCRS>urn:ogc:def:crs:EPSG::4326</SupportedCRS>
<SupportedCRS>urn:ogc:def:crs:OGC:2:84</SupportedCRS>
<SupportedFormat>image/netcdf4</SupportedFormat>
<SupportedFormat>application/x-netcdf</SupportedFormat>
</CoverageDescription>
</CoverageDescriptions>

```

⁴ Image/netcdf is deprecated but kept here for backward compatibility