

KNMI Data Licence Office

Licensee: Global Change Research Centre AS CR, Czech Republic

Category: Independent Service Provider

Month of Commencement: August 2016

ANNEX (product definitions and costs)

to ECMWF Licence Agreement between KNMI and Global Change Research Centre AS CR, reference 2015/1694 dated 1th August 2015, regarding the daily provision of Real-time Data Products from the ECMWF Catalogue. This Annex, dated 1th August 2016, supersedes all previous Annexes

changes: none, new annex because of renewal parent licence

Data product: ecmwf-nwp-custom-data

ECMWF Customized Model Data

1) Specification of the data

ECMWF Set I-i-a) Single Level Fields from the Global Deterministic Model in code GRIB FM92-X Ext. Analyses and Forecast Fields

Set 1: Central Europe

| | | |
|---|--|-------------------------------|
| Model runs | +00h 00 UTC only | 1 |
| Remark | delivery on Monday, Wednesday and Friday only | 0,43 |
| Area definition, regular Lat/Lon | | |
| North boundary | 55,00 N | West boundary 2,00 E |
| South boundary | 42,00 N | East boundary 30,00 E |
| Resolution Lat | 0,100 degrees | Resolution Lon 0,100 degrees |
| Grid points in Lat | 131 | Grid points in Long 281 |
| Total number of grid points/field | | 36811 |
| Information charging/field | | |
| EPU's/global field T1279/1280/L91 | | 20,00 |
| Size of the requested area | (square degrees) | 364 |
| Size of a global field | (square degrees) | 64800 |
| Adjustment factor due to area size | | 0,006 |
| Resolution T1279/L91(O1280 reduced Gaussian grid) | (degrees) | 0,1125 |
| Requested product resolution | (degrees) | 0,100 |
| Adjustment factor due to resolution | | 1,1250 |
| EPU's/field | | 0,126 (information charge) |
| Data extraction charging/field | | |
| Grid points/field | | 36811 |
| Grid points at resolution 0,1 * 0,1 equivalent to 1 EPU | | 94300 |
| EPU's/field | | 0,390 (extraction charge) |
| Requested time steps | +00h (+3h)+144h (+6h) +240h | 65 |
| Requested analyses/ forecast parameters | U10, V10, 2T, TD, TP SWVL1, SWVL2, SWVL3, SWVL4 | 8 |
| Requested forecast parameters only | MX2T3, MN2T3 (+3h - +144h) MX2T6, MN2T6 (+150h - +240h) TP, SSRD | 4 |
| Free delivery of invariants at +00h only | LSM | 0 |
| Requested fields/day | | 776 |
| Requested fields/year | | 121388,57 |
| Requested EPU's/year | | 15342,17 (information charge) |
| Requested EPU's/year | | 47385,31 (extraction charge) |

Data routing charging

Distribution principle: at each time step one composite file comprising all requested forecast parameter fields

| | |
|--|---------|
| Grid points per forecast parameter field | 36811 |
| Averaged bits per binary gridded value | 14 |
| Data volume KB per parameter field | 64,42 |
| Requested parameters | 8 |
| Data volume KB per file | 515,35 |
| Data routing units per file | 60,54 |
| Files per day | 65 |
| Data routing units/day | 3934,80 |

2) Specification of the annual licence costs (EUR)

| | | |
|----------------------------|-------------------------|-------------------------------|
| Set 1 requested EPU's/year | | 15342,17 (information charge) |
| Total requested EPU's/year | | 15342,17 (information charge) |
| After volume discount | $2000 + 0.6 (N - 2000)$ | 10005,30 |
| EPU tariff (EUR) | | 0,60 |
| Annual licence costs | | 6003,18 |

3) Specification of the annual delivery costs (EUR) included 24 h proces control

Data extraction and grid transformation

| | | |
|--|-----------------------------|------------------------------|
| Set 1 requested EPU's/year | | 47385,31 (extraction charge) |
| Total requested EPU's/year | | 47385,31 (extraction charge) |
| After volume discount | $12800 + 0,4 * (N - 20000)$ | 23754,12 (extraction charge) |
| Extraction/transformation tariff | EUR/EPU | 0,103 |
| Annual data extraction/grid transformation costs | | 2446,67 |

Data routing charging

| | | |
|----------------------------------|--------------------|---------|
| Set 1 data routing units/day | | 3934,80 |
| Total data routing units per day | | 3934,80 |
| First 1000 units | 2,04 EUR/unit/year | |
| 1001 -5000 units | 0,51 EUR/unit/year | |
| 5001 and more | 0,10 EUR/unit/year | |
| Annual data routing costs | | 3536,75 |

4) Summary of the costs (EUR)

| | | | |
|------------------------------|---------|---------------------------------|---------------|
| Annual licence costs | 6003,18 | | |
| Annual delivery costs | 5983,42 | startup delivery fee discount % | |
| Annual delivery costs set to | 897,51 | 0,15 | |
| Total per annum | 6900,69 | Sum due per month | 575,06 |

5) Signatures

For Licensor (KNMI)

For Licensee (GCRI CAS)

Signature,

Signature,

Date:

Date: