Comments from Public Consultation on ECV Requirements 13/01 – 13/03 2020 for:

# Precipitation

## ECV Product: Accumulated Precipitation

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| --- | --- | --- | --- | --- | --- |
| Name | Accumulated precipitation | | | | |
| Definition | Amount of solid and liquid precipitation reaching the ground over a period defined in the metadata. | | | | |
| Unit | mm | | | | |
| Note | This ECV is designed to monitor the amount of precipitation in order to investigate the impact on the hydrological cycle, agriculture or droughts. It is not designed to monitor extremes in case of heavy precipitation and their changes over time. | | | | |
| Requirements | | | | | |
| Item needed | **Unit** | **Metric** | **[[1]](#footnote-1)** | **Value** | **Derivation and References and Standards** |
| Horizontal Resolution | km |  | G | 50 |  |
| B | 125 |  |
| T | 250 |  |
| Vertical Resolution | N/A |  | G | N/A | N/A |
| B | N/A | N/A |
| T | N/A | N/A |
| Temporal Resolution | N/A  aggregation over period defines the upper limit of temporal sampling |  | G | Monthly totals |  |
| B | Seasonal totals |  |
| T | Annual totals |  |
| Timeliness | N/A |  | G | Monthly |  |
| B | Seasonal |  |
| T | Annual |  |
| Required Measurement Uncertainty | mm |  | G | 1 |  |
| B | 2 |
| T | 5 |
| Stability | mm/decade |  | G | 0.02 |  |
| B | 0.05 |  |
| T | 0.1 |  |
| Standards and References |  | | | | |
| Adaptation and Extremes | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| Adaptation[[2]](#footnote-2) |  |  | Reviewers are invited to suggest answers for these fields | | |
| Extremes[[3]](#footnote-3) | no | no |  | | |

### Comment 1

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| --- | --- |
| Author: Elizabeth Kendon | Email: [elizabeth.kendon@metoffice.gov.uk](mailto:elizabeth.kendon@metoffice.gov.uk) |
| There is no mention of daily or hourly precipitation, and for “accumulated precipitation” the note reads “… It is not designed to monitor extremes in case of heavy precipitation ….”  Extremes of daily and hourly precipitation are what I want to evaluate in climate models. Hence having this data from observing systems, ideally at high spatial resolution, is a key requirement for my work. Currently observational data from radar and gauges on daily and hourly precipitation is available for some regions, but there are many regions where there is a real lack of data on hourly and daily precipitation.  Improvements to increase the global coverage of daily and hourly precipitation observations would be very welcome. | |

### Comment 2

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| Author: ECMWF | Email: [ecresgcosreqs@gmail.com](mailto:ecresgcosreqs@gmail.com) |
| The stated requirements look appropriate for long-term monitoring.  For reanalysis and NWP purposed at, e.g., ECMWF, spatial and temporal requirements are much higher, with a goal of about 2 km and hourly from radar-based observations.  The unit for measurement uncertainty does not specify the accumulation period. Reanalysis and NWP products at ECMWF typically show somewhat higher amounts (~0.2 mm/day) for globally-averaged precipitation than more directly observation-based products like GPCP. We think the goal for uncertainty on the global scale should be below 0.1 mm/day.  The stability requirements looks appropriate.  We fully agree with the post by Elizabeth Kendon on the importance of extremes. A change in their magnitude and frequency is an important aspect of climate change. The evolution of monthly-mean precipitation is important, but in this respect, not sufficient. | |

### Comment 3

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| Author: Shinya Kobayashi | Email: shn.kobayashi@gmail.com |
| I fully agree with the previous posts by Elizabeth Kendon and ECMWF on the importance of extremes, and I also think that If we want to include extreme precipitation into subjects of routine (near-real-time) climate monitoring, we need to have the data available within a few days. | |

### Comment 4

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| --- | --- |
| Author: Wilberforce Kikwasi - Tanzania Met Authority | Email: wkikwasi@gmail.com |
| I fully agree with the previous posts by Elizabeth Kendon and ECMWF on the importance of extremes, and I also think that If we want to include extreme precipitation into subjects of routine (near-real-time) climate monitoring, we need to have the data available within a few days. | |

### Comment 5

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| Author: Abdullah Kahraman | Email: kahraman@meteogreen.com |
| I totally agree with the comments above, emphasising the need for well higher spatial and temporal resolutions with respect to studying extremes. I would ideally want to see a "Precipitation type and properties" topic, for example for hail, including the size of the hailstones, hail cover thickness, etc. | |

### Comment 6

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| Author: MSRI Scnatweb | Email: mountainresearchinitiative@gmail.com |
| In mountains precipitation data Is critical for several processes such as runoff, snow melt, glacial retreat, and ecological changes such as treeline shifts. Daily to sub daily measurements with <500m resolution needed. For better understanding of orographic precipitation, hourly to daily in situ measurements covering gradients are needed. There is still uncertainty of in situ measurements particularly for snow.  Based on discussions and preliminary outcomes of the GEO GNOME workshop for identifying ECVs to monitor and understand mountain climate change. More information on the workshop here: LINK. | |

### Comment 7

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| Author: Andrew Ferrone | Email: pr.wmo.luxembourg@gmail.com |
| Luxembourg considers that accumulated precipiation is also relevant as adaptation indicator because variation in precipitation will impact floods, drinking water supply, water level in rivers, etc. to which it will be necessary to adapt. | |

1. Goal (G); Breakthrough (B) (not mandatory, more as one possible); Threshold (T), for definitions see [Guidelines](http://tiny.cc/ecv-review) [↑](#footnote-ref-1)
2. Is the ECV Product directly relevant to support Climate Adaptation? [↑](#footnote-ref-2)
3. Can the ECV Product be used to monitor climate extremes or aspects of extremes? [↑](#footnote-ref-3)