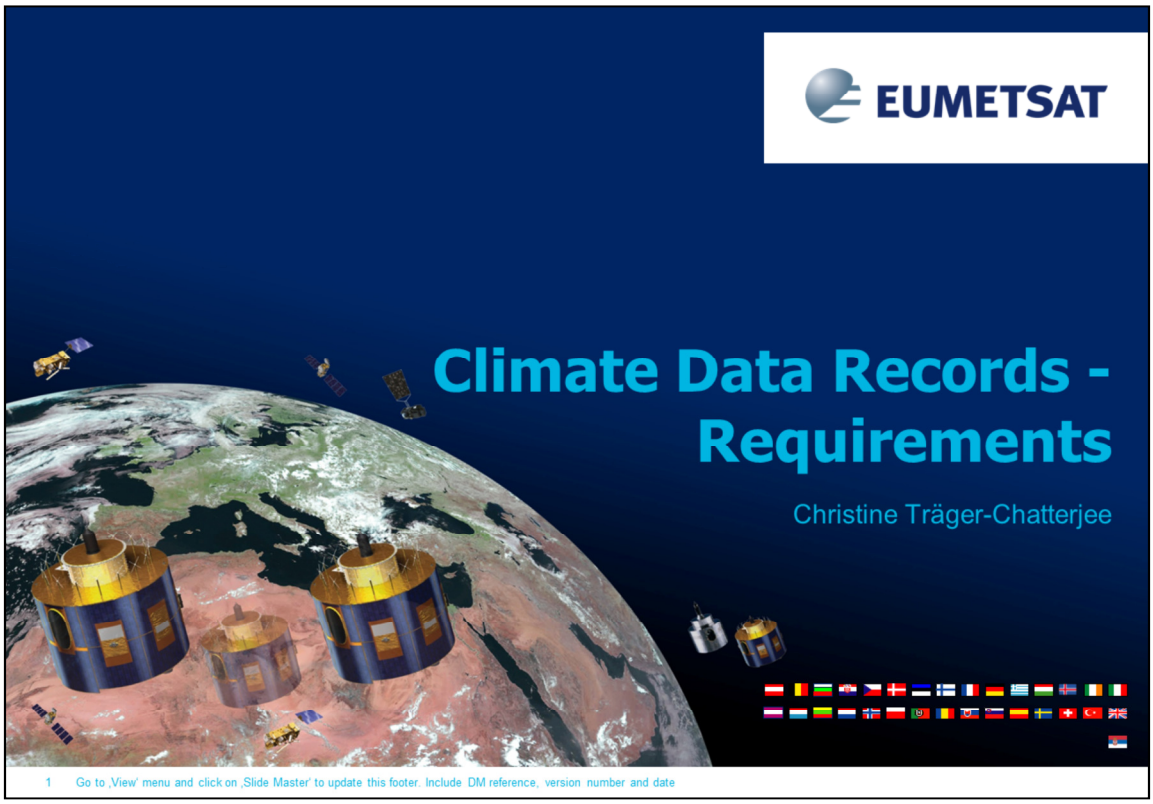
EUMETSAT
Climate Data Records - Requirements
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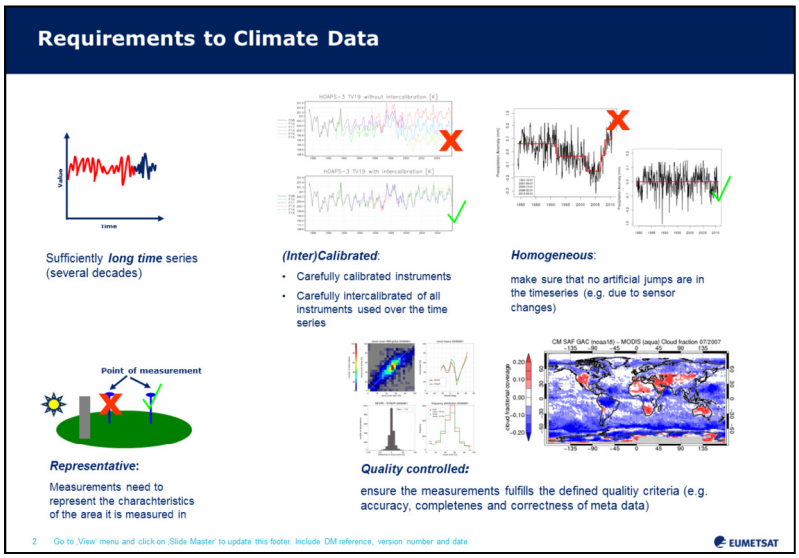
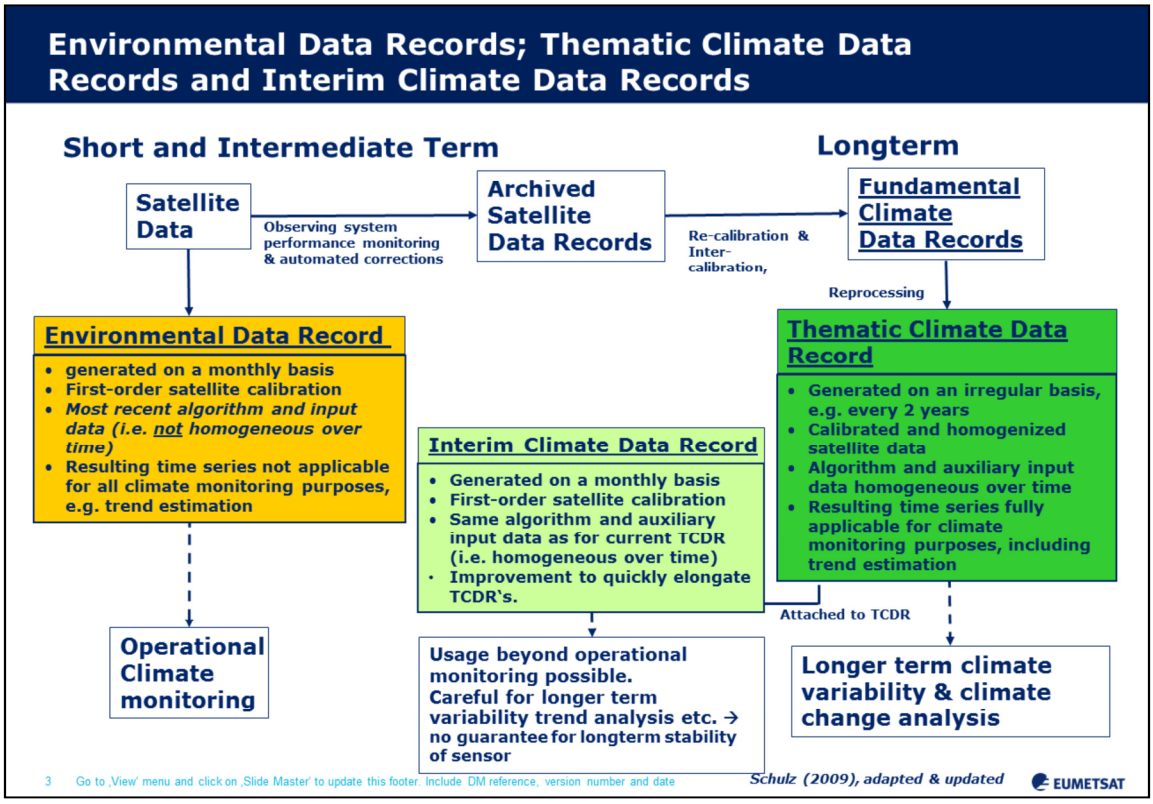


- Sufficiently long time series: for climate monitoring the time series should cover several decades of observations.
- Homogenisation
    - Calibrated instruments: the sensitivity of measuring instrumenst changes over time. This needs to be accounted for when creating a climate data record, to avoid trends introduced by the instrument (artificial trend versus natural trend).
    - Intercalibrated instruments: when collecting observations over several decades it usually means that one has to deal with changing instruments (instruments being replaces by new ones). Different instruments always behave slightly different. This needs to be accounted for when creating a climate

data record, to avoid jumps in the time series that are due to the change of instruments (artificial jumps)

- Representative: Looking at one and the same situation, the same instruments need to measure the same values. I.e. the data need to be representative for the area/region they are measured in.
- Quality controlle: the measurements need to fulfill defined accuracy requirements and come with a complete set of metadata.



Environmental Data Record (EDR): Satellite Data are collected, a first order calibration and retrieval algorithms to derive geophysical variables are applied (operational satellite data). The retrieval algorithms develop over time and the sources for auxiliary input data might change. I.e. the value of month X might be retrieved with a (slightly) different retrieval than month Y.

Fundamental Climate Data Record (FCDR): Homogenized time series (of satellite data). The sensors used the during the entire time series are carefully calibrated and intercalibrated. I.e. it is ensured (as far as possible) that no articical jumps and no artifical trends are in the time series. An FCDR is updated irregularly, i.e. every few years with no fixed update cylce.

Thematic Climate Data Record (TCDR): A stable retrieval algorithm with the same source of auxiliary input data is applied to the a Fundamental Climate Data Record. It is ensured (as far as possible) that trends and varibalities are due to actual changes in the environment and not due to changes in sensor characteristics nor due to changes in the retrieval. A TCDR is updated irregularly, i.e. every few years with no fixed update cylce.

Interim Climate Data Record (ICDR): The same stable retrieval algorithm and the same sources of auxiliary input data data as applied to derive the most recent TCDR

are applies to operational satellite data. The result is „attached“ to the TCDR. An ICDR can be used beyond operational climate montoring, but care needs to be taken to use it for long term climate analysis, as the longterm stability of the satellite sensor used can not be guaranteed.