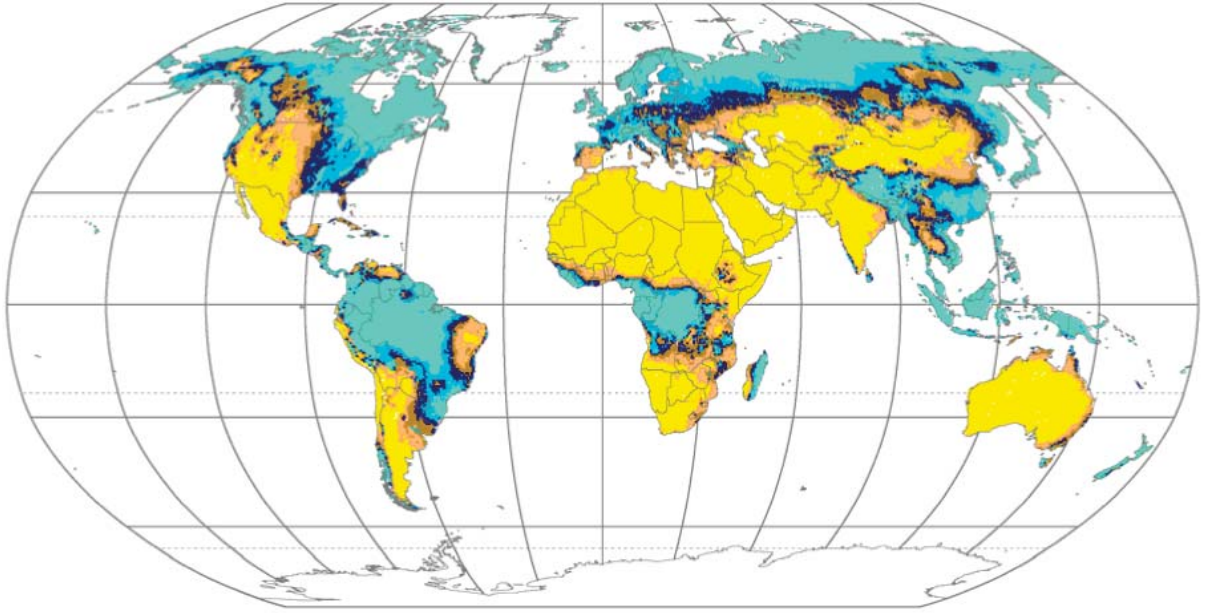


Indicator name	Coefficient of variation for climate moisture index
 <p data-bbox="456 947 594 968">Arid/semi-arid</p> <p data-bbox="1062 947 1240 968">Sub-humid/humid</p> <p data-bbox="261 989 342 1024">Low</p> <p data-bbox="431 989 513 1024">Moderate</p> <p data-bbox="634 989 716 1024">High</p> <p data-bbox="894 989 976 1024">Low</p> <p data-bbox="1049 989 1130 1024">Moderate</p> <p data-bbox="1252 989 1333 1024">High</p>	
Prepared by	Water Systems Analysis Group, University of New Hampshire (UNH)
Example	WWDR2, Section 4, Global Map 7
Rationale	The Coefficient of Variation (CV) Index for the climate moisture index (CMI) is a statistical measure of variability in the ratio of plant water demand to precipitation. It is useful for identifying regions with highly variable climates as potentially vulnerable to periodic water stress and/or scarcity.
Position in DPSIR chain	State
Definition of indicator	Ratio of standard deviation to mean per grid cell along river network for 36 year time series.
Underlying definitions and concepts	The indicator is based on the following definition: <ul style="list-style-type: none"> • Precipitation time series fields • Potential Evapotranspiration (optimal plant water demand) time series fields
Specification of determinants needed	Gridded precipitation fields (1960-1995, monthly precipitation per grid cell) Gridded potential evapotranspiration fields (1960-1995, monthly evapotranspiration per grid cell)
Computation	The indicator is computed as: $\text{CMI CV} = \text{StdDev}(\text{CMI}) / \text{Mean}(\text{CMI})$ <p>Where: StdDev (CMI) = standard deviation of the CMI over the 51yr time series (1950-2000) per grid cell; Mean(CMI) = mean annual CMI over the 51 yr time series per grid cell.</p>
Units of measurements	This is a ratio and therefore has no units.
Data sources, availability and quality	All data for this indicator is available from the Water Systems Analysis Group at University of New Hampshire: http://wwdrii.sr.unh.edu/download.html . (Accessed March 2009)

Scale of application	Local for basins exceeding 25, 000 km ² (within a city or community); regional (within a sub-national region); national (for a country); international (across several countries or globally).
Geographical coverage	Global, gridded dataset at 30-minute grid cell resolution Africa, gridded dataset at 6-minute grid cell resolution
Interpretation	The Coefficient of Variation (CV) is a statistical measure of the potential seasonal and interannual fluctuations in water availability for regions. Increased climate variability indicates larger year-to-year fluctuations, and hence, less predictability in the climate. Increased CMI CV often occurs along the interfaces between humid and dry, for instance, in the Sahelian region of Africa and in the North American Great Plains. These are areas known for periodic, severe droughts and water scarcity.
Linkage with other indicators	This indicator represents one in a group of indicators dealing with water availability as a function of climate. Other indicators in this group include: Climatic Moisture Index (CMI)
Alternative methods and definitions	The CMI ranges from -1 to +1, with wet climates showing positive values and dry climates negative values. As important as the baseline CMI is, its variability over multiple years is also critical in defining reliable water supplies. This is measured by the so-called <i>coefficient of variation</i> (CV), defined as the ratio of year-to-year deviations around a long-term annual mean. A value of CV < 0.25 is classified as low variability; 0.25 to 0.75 moderate variability and > 0.75 high variability.
Related indicator sets	None reported
Sources of further information	Charles J. Vörösmarty, Ellen M. Douglas, Pamela A. Green, and Carmen Revenga. Geospatial Indicators of Emerging Water Stress: An Application to Africa, <i>Ambio</i> , 34 (3): 230-236, 2005.
Involved agencies	Water Systems Analysis Group, University of New Hampshire http://www.wsag.unh.edu/ (Accessed 3 March 2009) World Resources Institute http://www.wri.org (Accessed 3 March 2009)