

Areas covered by Koeppen classes

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The area of land surface covered by Koeppen classes can easily be calculated from the global rasterized Koeppen classification data of the world's land surface. More details are provided [here](#).

Table 1 shows the area estimates for the major Koeppen classes using the whole 50 year period and 3 datasets. It can be seen that on the global scale the results are rather similar. Tables with more detailed results can be downloaded in csv format.

Table 1: Area covered by Koeppen climate classes in million square kilometers based on the 50-year period 1951 – 2000. The links point to the detailed tables in csv format. Greenland and Antarctica are excluded because of lack of data.

Precipitation data source /Koeppen Class	CRU	GPCC Fulldata	GPCC VASClmO
A	29.375	29.525	29.615
B	36.457	36.364	36.231
C	21.917	22.057	22.068
D	33.015	32.818	32.851
E	7.253	7.253	7.253

Table 2: Transitions in area coverage (in million square kilometers) of major Koeppen classes between the periods 1951-1975 and 1976-2000 for CRU temperatures and GPCC VASClmO precipitation.

Transition Matrix		From					
		A	B	C	D	E	Sum
To	A	29.012	0.219	0.507	0	0	29.738
	B	0.556	35.066	0.672	0.164	0.015	36.473
	C	0.064	0.486	20.764	0.726	0.034	22.075
	D	0	0.096	0.074	31.987	0.55	32.708
	E	0	0.01	0.009	0.061	6.943	7.023
	Sum	29.632	35.877	22.027	32.938	7.543	128.017

Table 2 shows the extent of areas that were in a certain Koeppen class in the first period 1951-1975 and shifted to another one in the period 1976-2000.

While Table 1 provides information on the structural uncertainty of the estimates of Koeppen classes with respect to the data sources, Table 2 provides information on the differences of the covered area of different periods. Comparing Table 1 and Table 2 reveals that considerable transitions happened between the two periods. The fluxes are mainly of the kind $E \rightarrow D$, $D \rightarrow C$, $C \rightarrow A$, (manifesting global warming) and $C \rightarrow B$, $A \rightarrow B$ (revealing an enlarged area covered by dry climate). These transitions cover more than 500,000 km² each¹. This is considerably larger than the uncertainties provided in Table 1.

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¹ This is about the area of Spain