

Grundwasserhydrologie (Master Hydrologie)

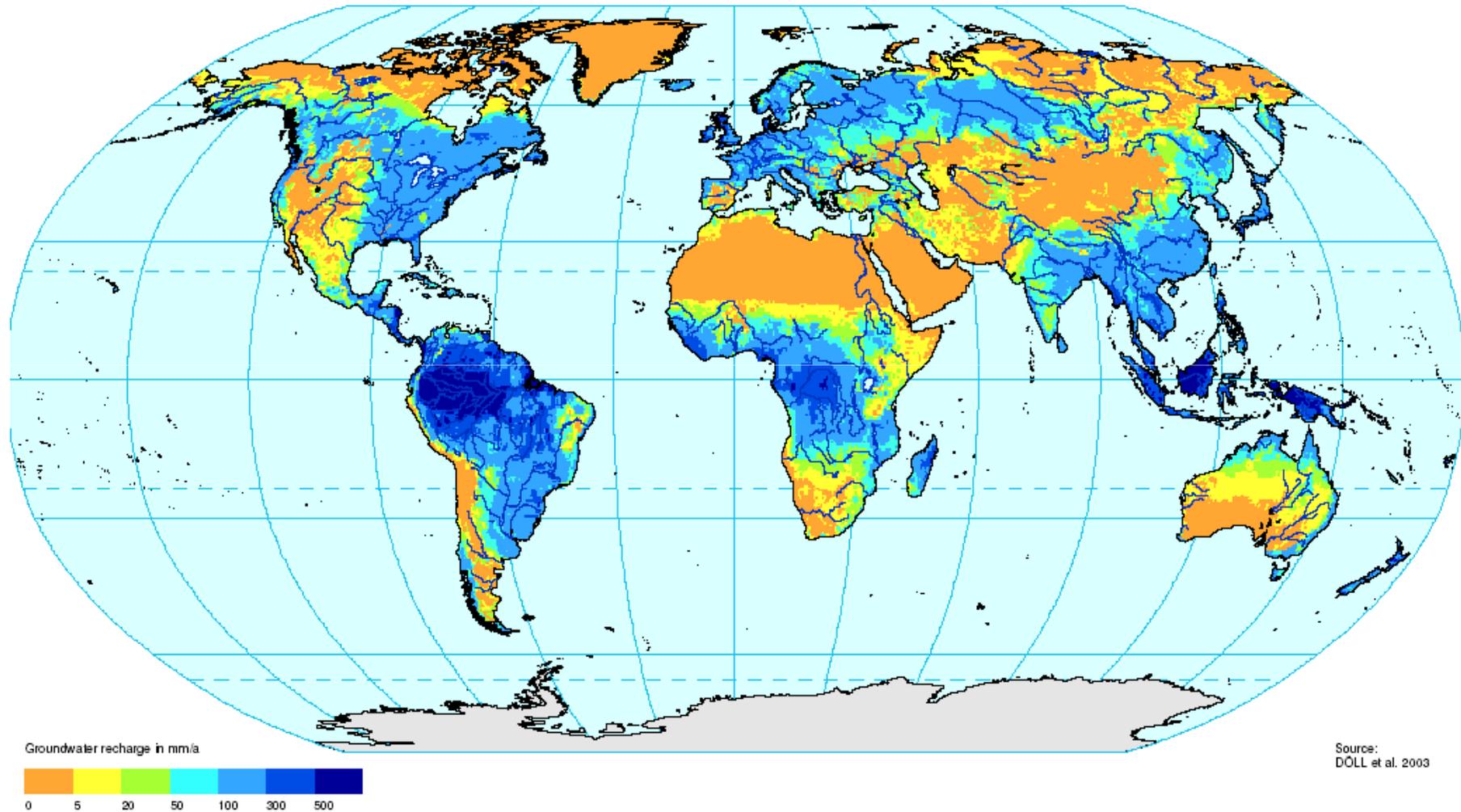
Speicherung

Dr. Christoph Külls
Wintersemester 2009/2010

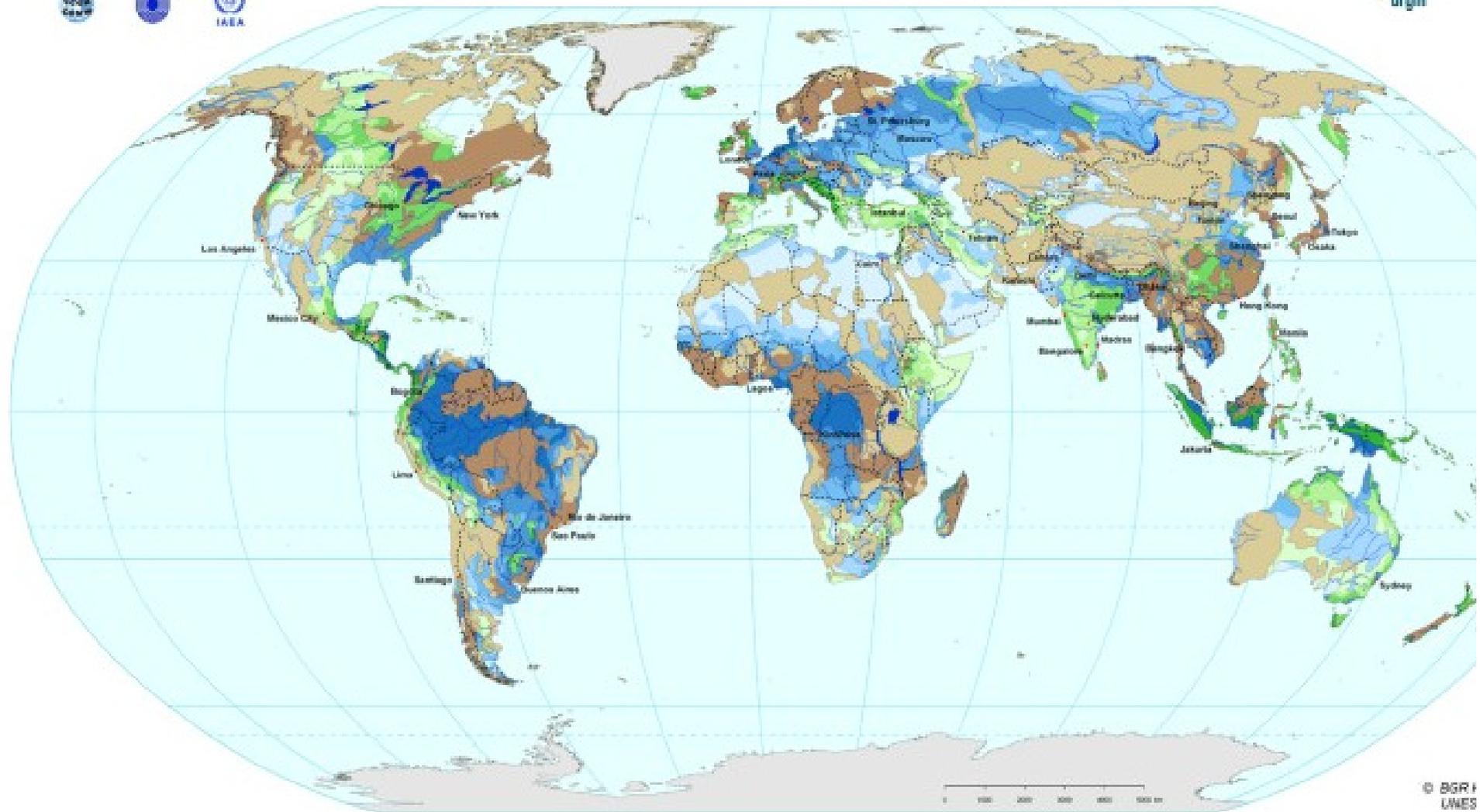
GWN über Hydrologische Bilanzen

$$\mathbf{GWN = N - A - V \pm \Delta S}$$

Average annual groundwater recharge 1961–1990



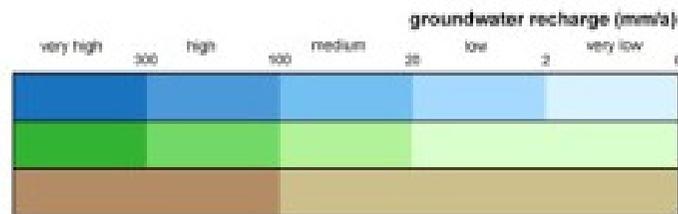
Groundwater Resources of the World



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Groundwater resources

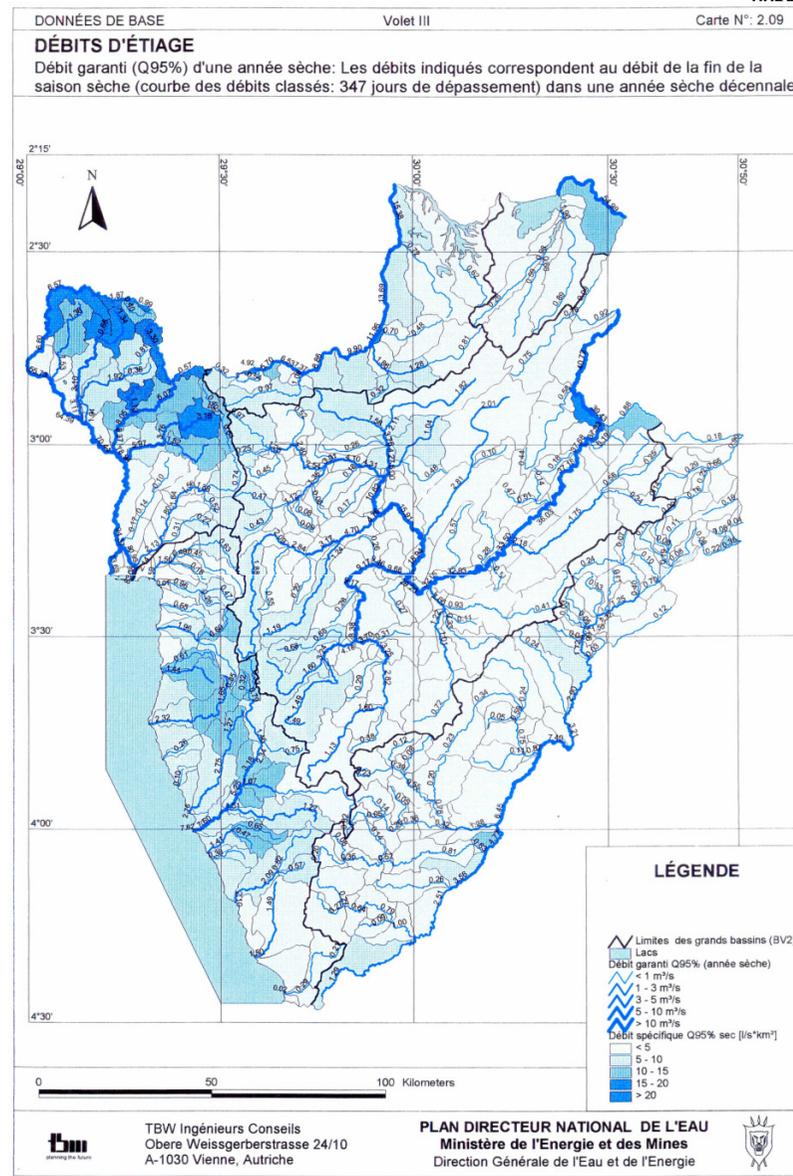
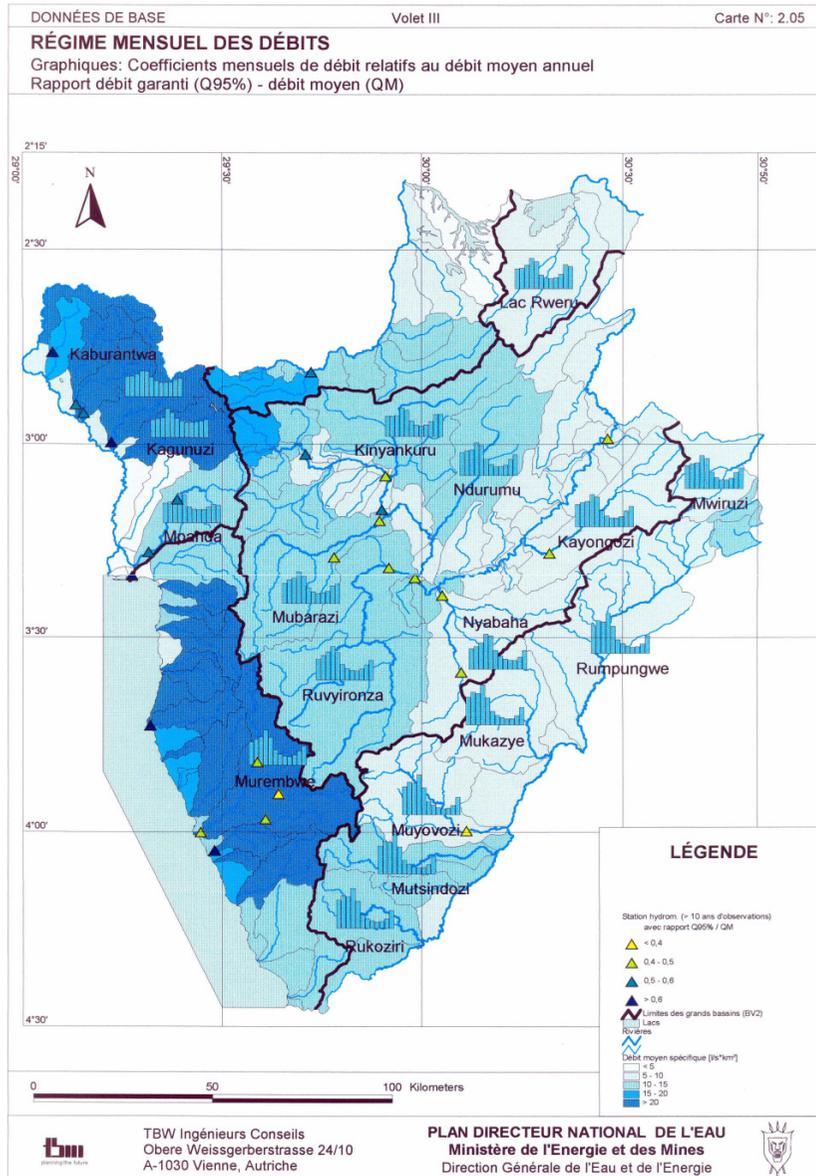
- in major groundwater basins
- in areas with complex hydrogeological structure
- in areas with local and shallow aquifers



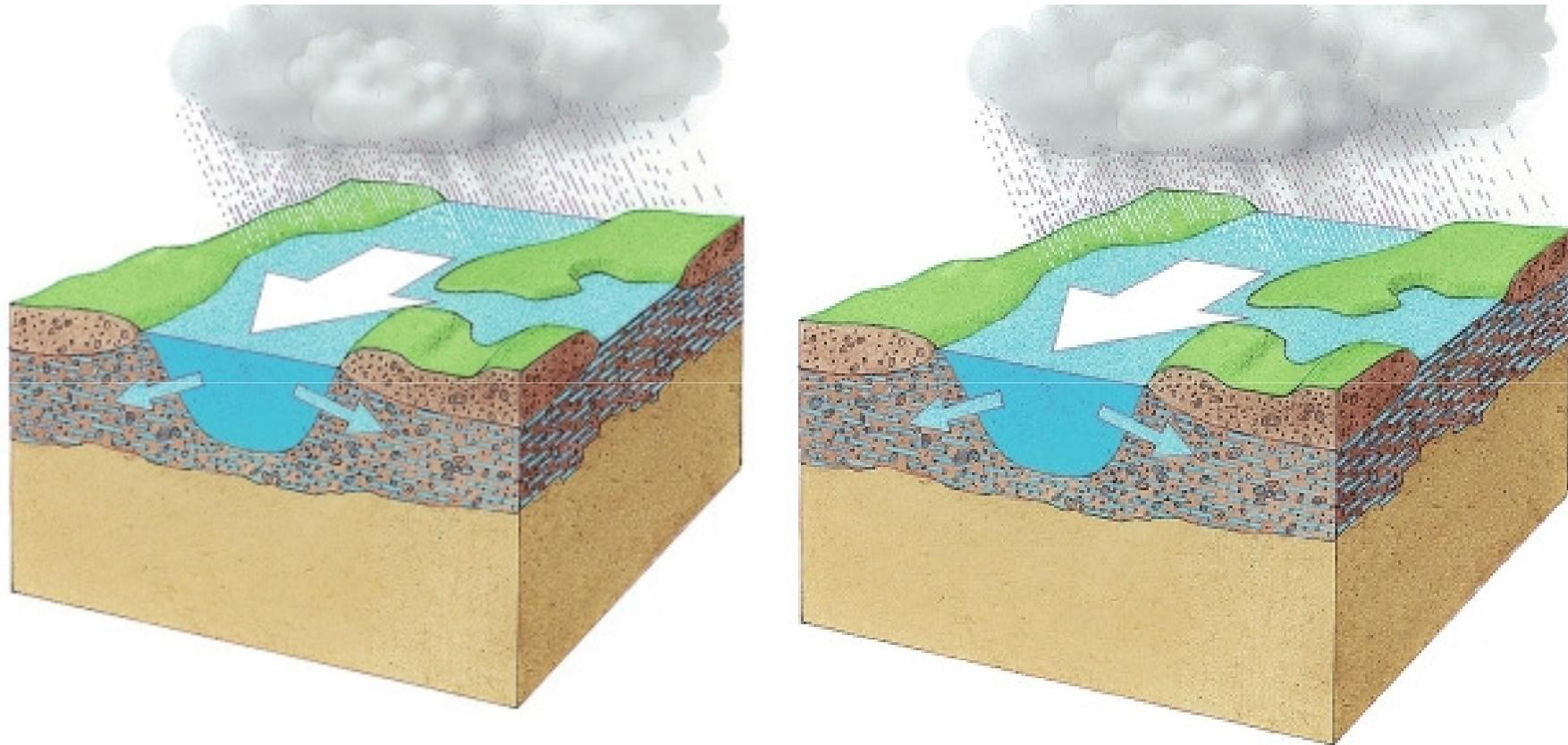
Surface water & Geography

- major river
- large freshwater lake
- large saltwater lake
- continuous ice sheet
- selected city

Bilanz und Speicherung

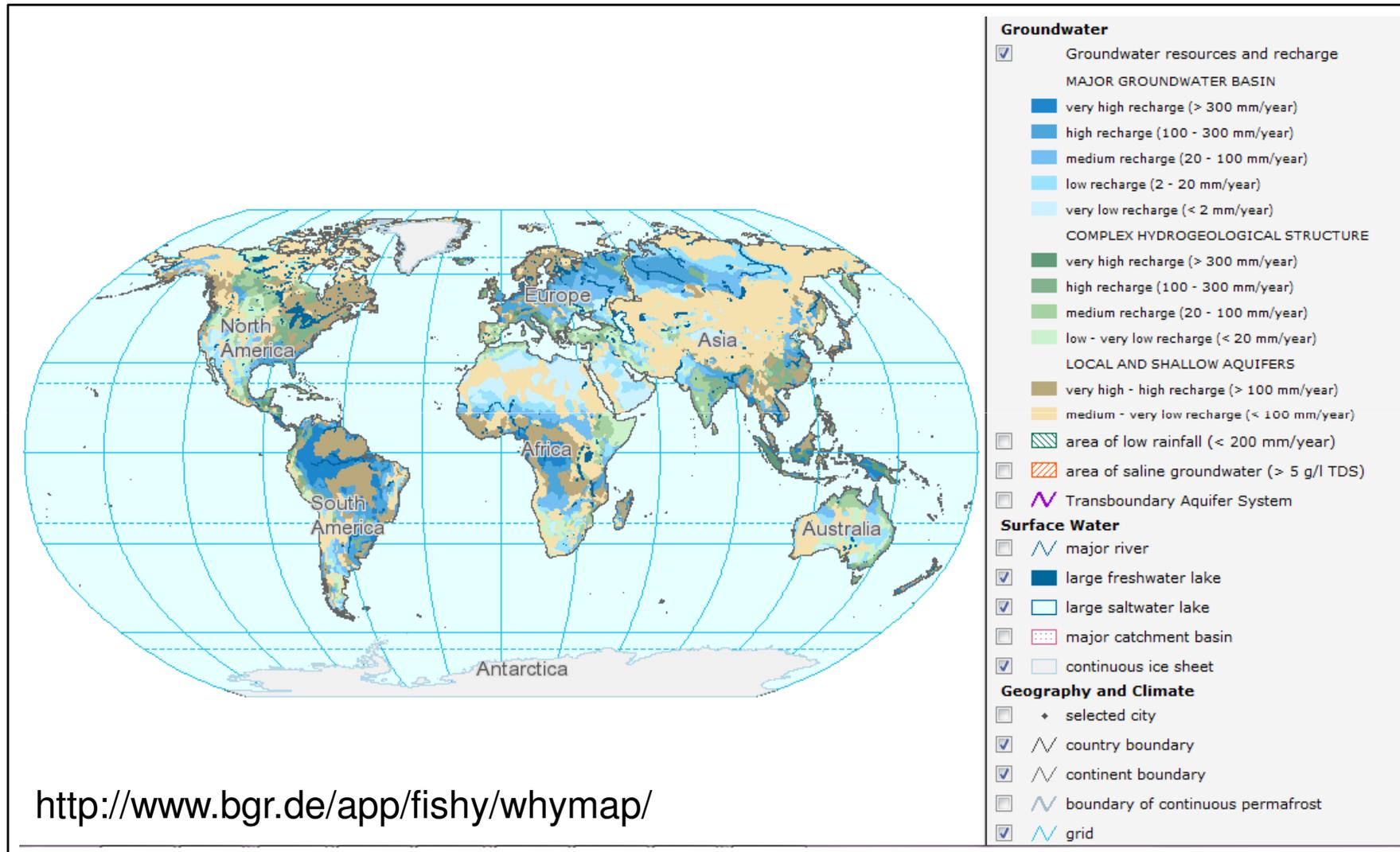


Uferspeicherung mildert Abflussspitzen

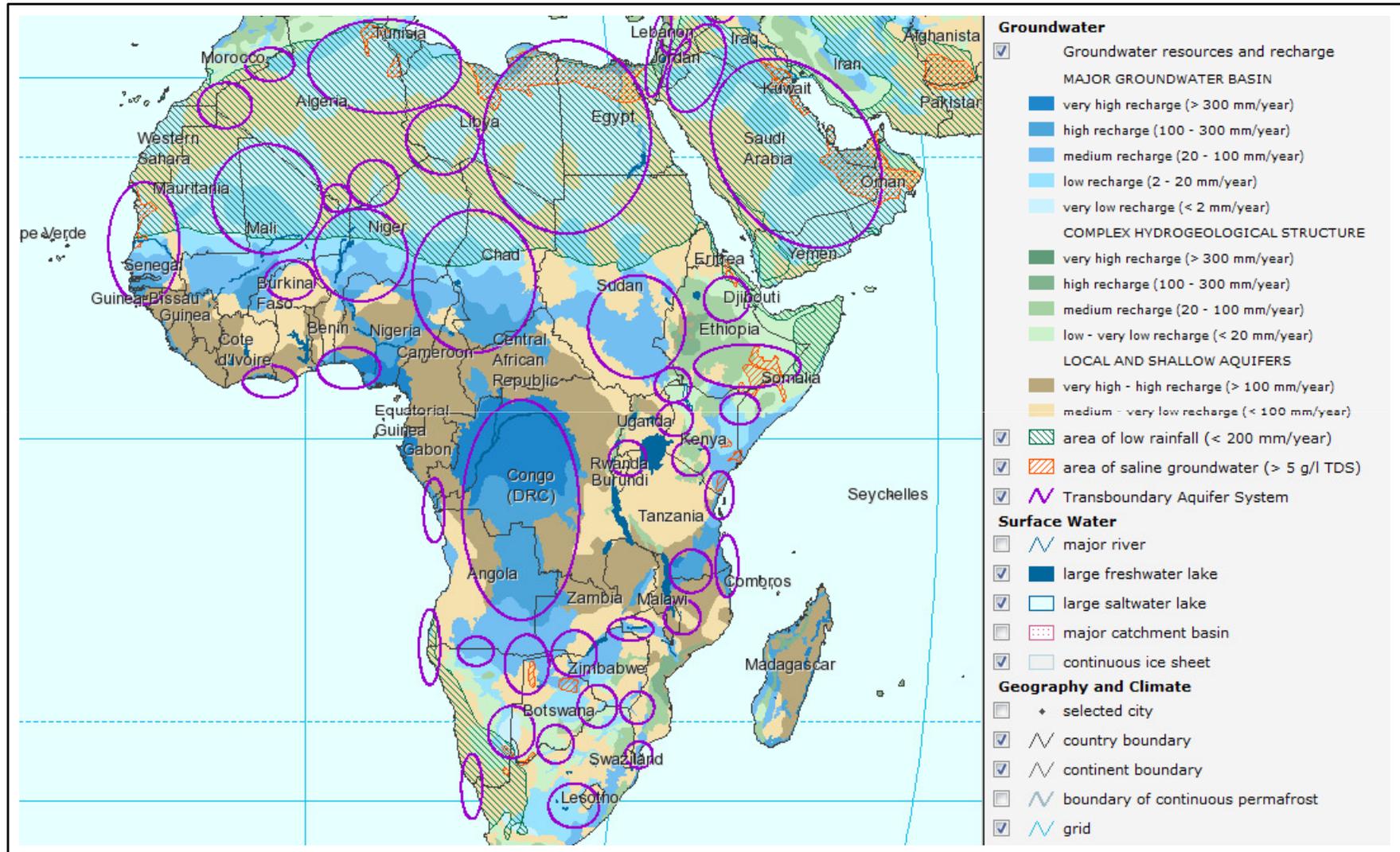


BfW, 2010

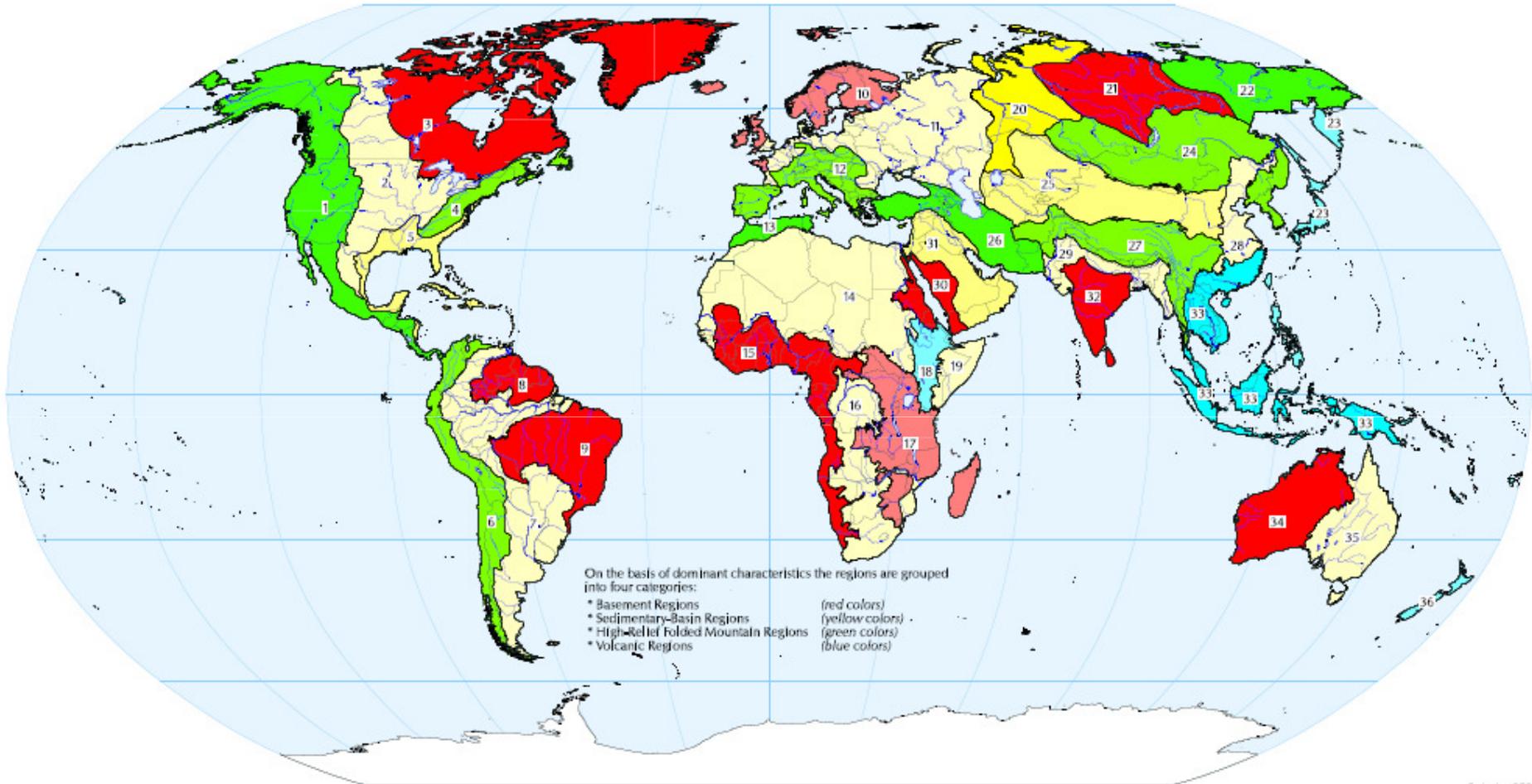
Weltkarte der Grundwasserressourcen, Whymap



Weltkarte der Grundwasserressourcen, Whymap



Weltkarte der Grundwasserressourcen, Whymap



IC / UNESCO

Projection: ROBINSON
Spheroid: WGS84
Central meridian: 0°

<http://www.igrac.net/publications/119>

$$S_s = \frac{\Delta V}{V \cdot \Delta h}$$

und

$$S = b S_s$$

mit

S_s = spezifischer Speicherkoeffizient (*engl. storage coefficient*)

S = Speicherkoeffizient (*engl. storativity*) [= O (0,005)]

V = Volumenelement

ΔV = zusätzlich (ent) (ge) gespeichertes Wasservolumen

Δh = Standrohrspiegelhöhenänderung im Volumenelement V

b = Mächtigkeit des Aquifers