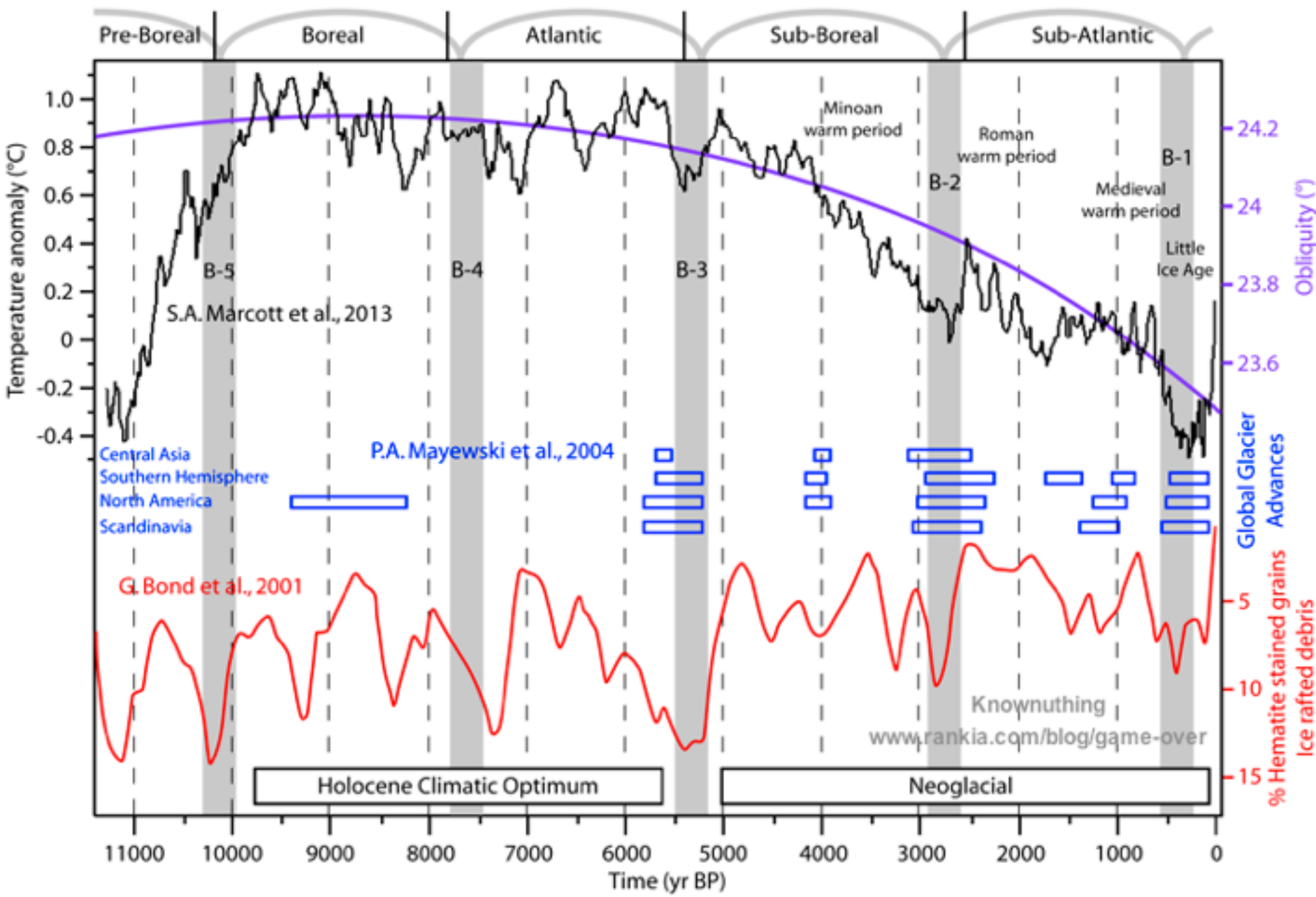


# Bond, voda a změny klimatu včera a dnes

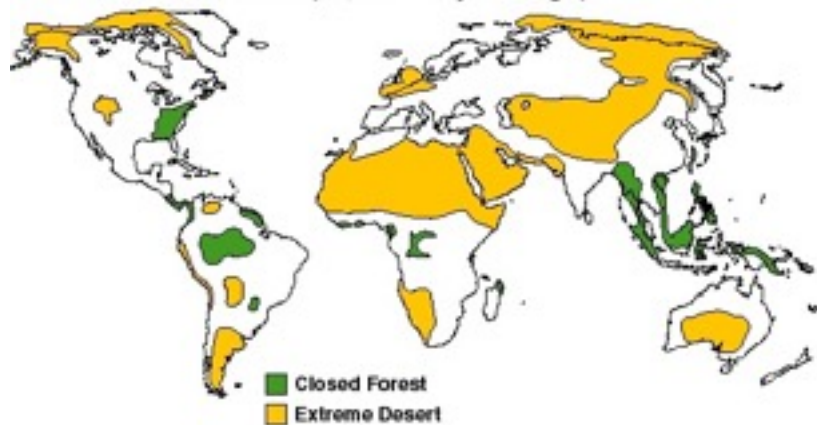


KOMPLEXNÍ  
SPOLEČNOSTI

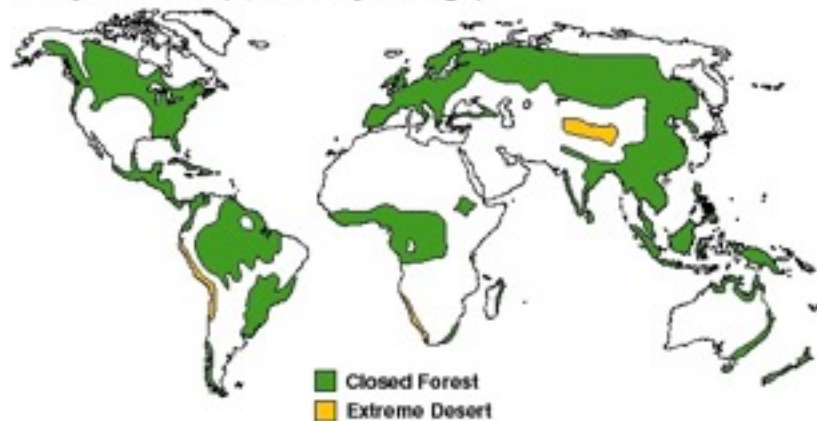


John Kutzbach a Gerald C. Bond, Lamont-Doherty Earth Observatory Kolumbijské university

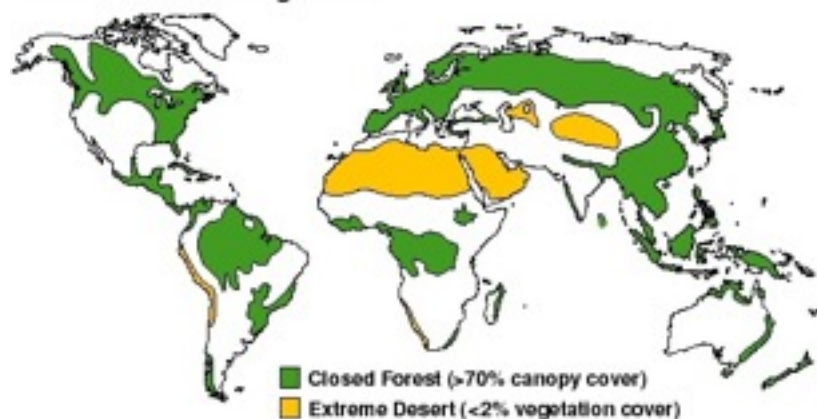
Last Glacial Maximum (18,000 <sup>14</sup>C years ago)



Early Holocene (8,000 <sup>14</sup>C years ago)



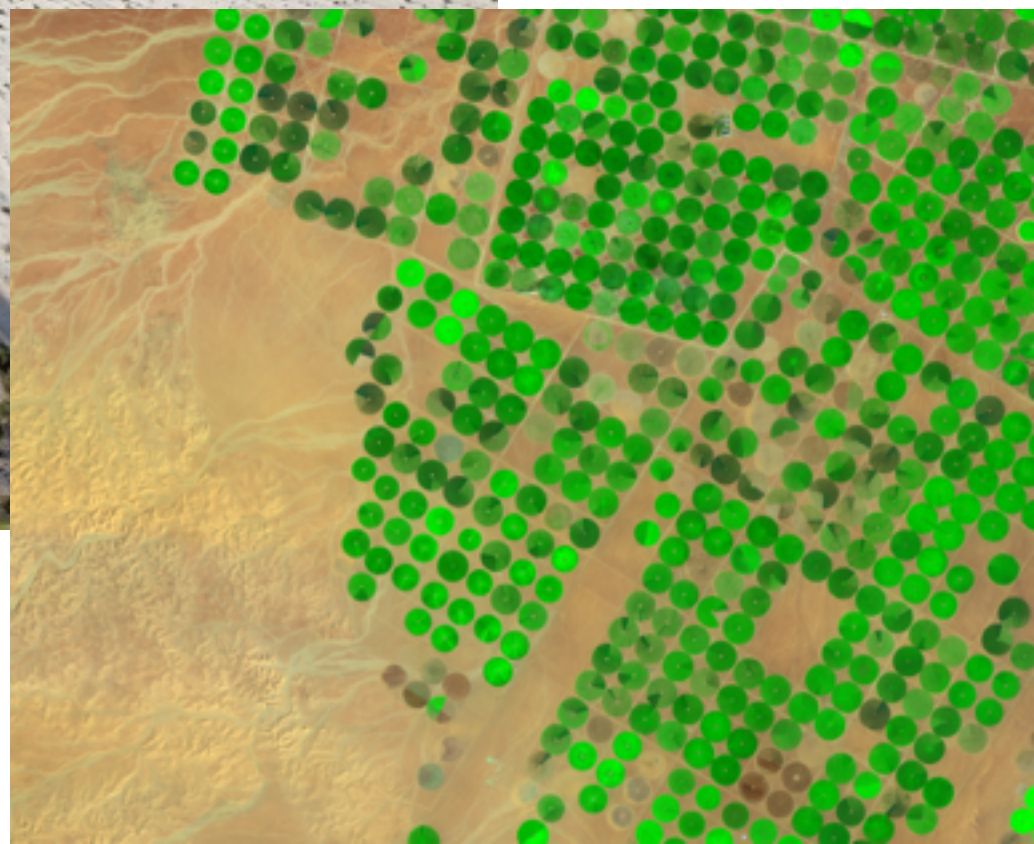
Present Potential Vegetation



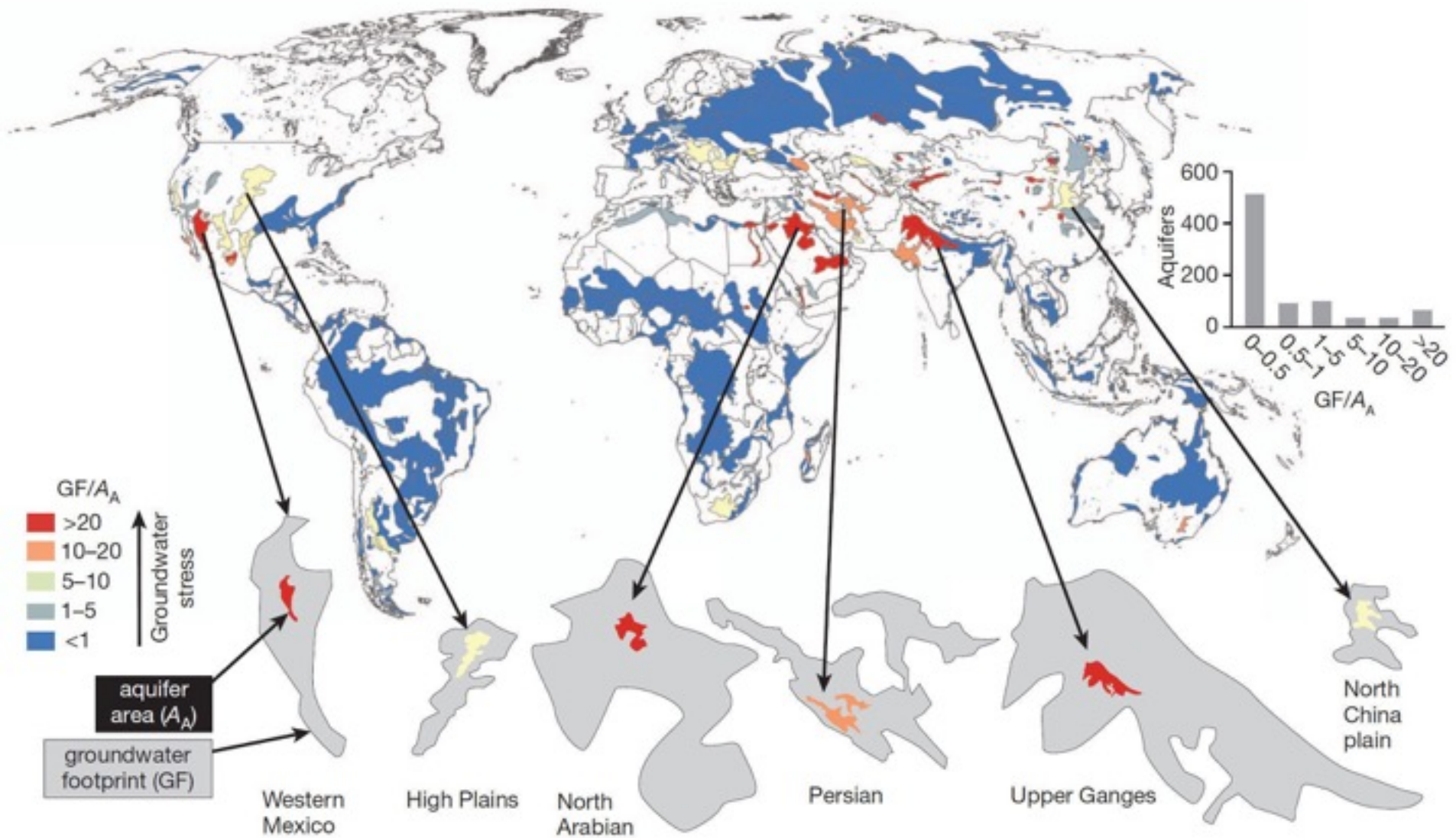
# Pouštní a polopouštní regiony jsou závislé na FOSILNÍ vodě !














Palm Springs, Kalifornie

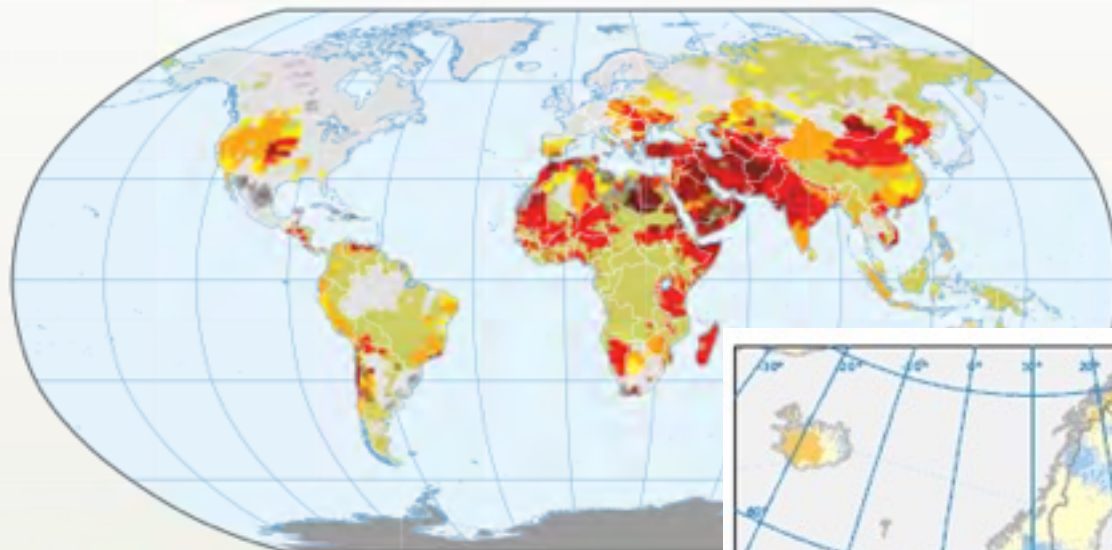


Negevská poušť, Izrael



(zdroj: Gleeson et al., *Nature*, 2012)

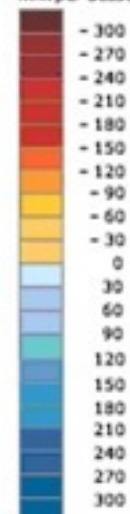
- |   |   |
|---|---|
|  Significantly less stressed |  Extremely more stressed     |
|  Moderately less stressed    |  Exceptionally more stressed |
|  Near-normal conditions      |  Uncertainty in magnitude    |
|  Drier but still low stress  |  Uncertainty in direction    |
|  Moderately more stressed    |  No data or out of area      |
|  Severely more stressed      |   |



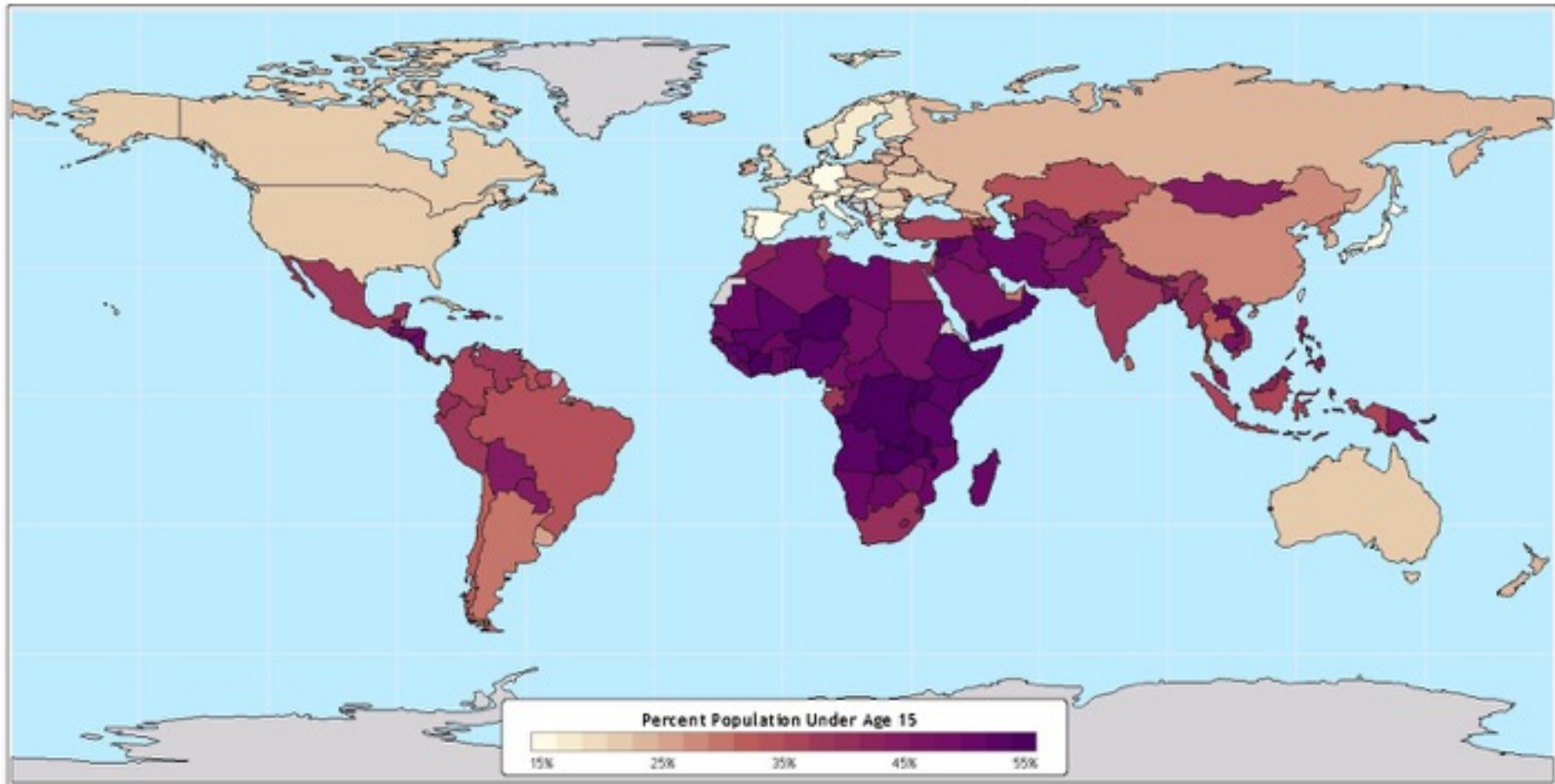
Observed changes in annual precipitation between 1961–2006

Red: decrease  
Blue: increase

mm per decade



# Population Under Age 15

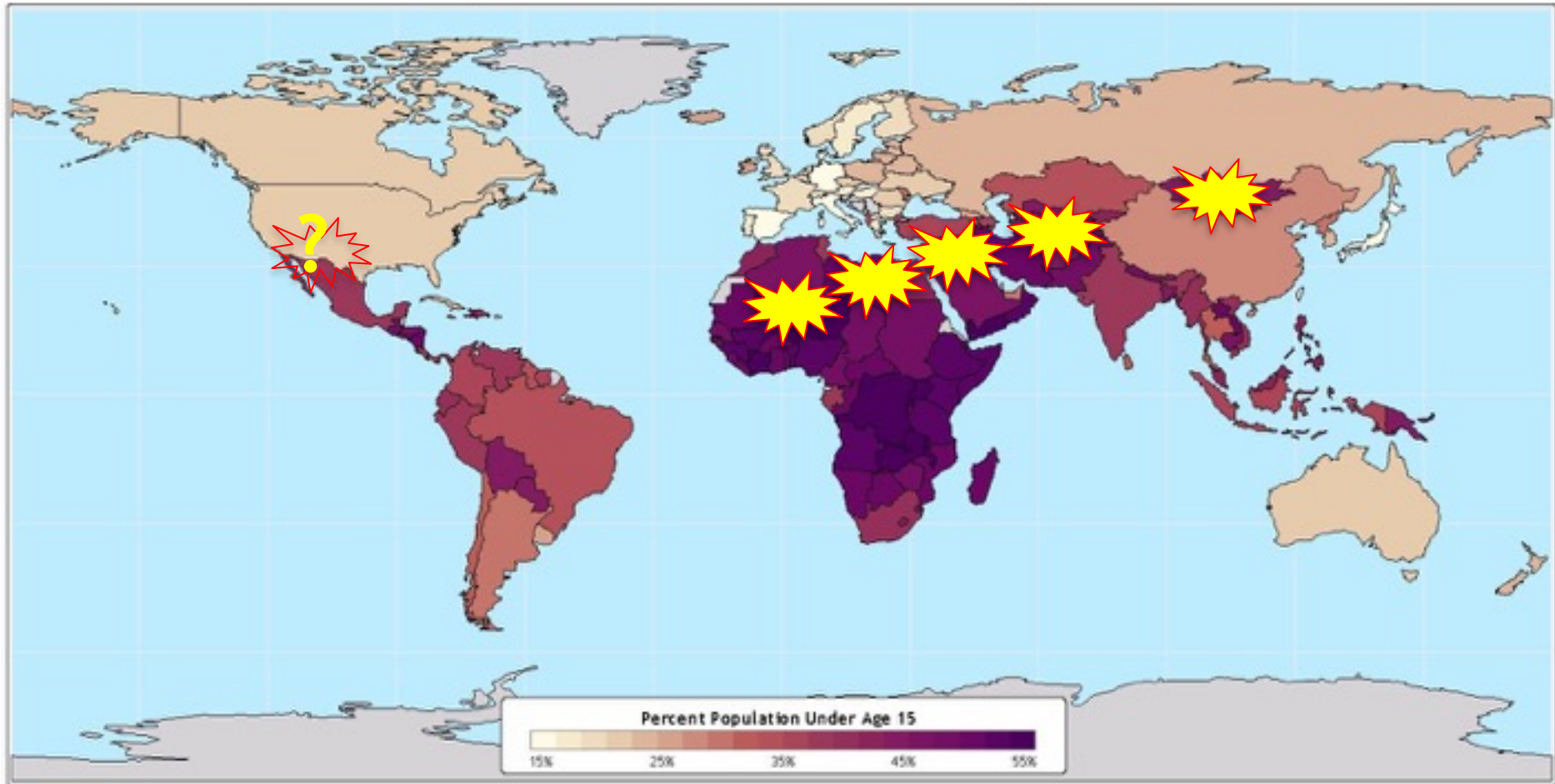


Data taken from: ESRI (2000)

## Atlas of the Biosphere

Center for Sustainability and the Global Environment  
University of Wisconsin - Madison

# Population Under Age 15



Data taken from: ESRI (2000)

**Atlas of the Biosphere**  
Center for Sustainability and the Global Environment  
University of Wisconsin - Madison



# Sucho 2010



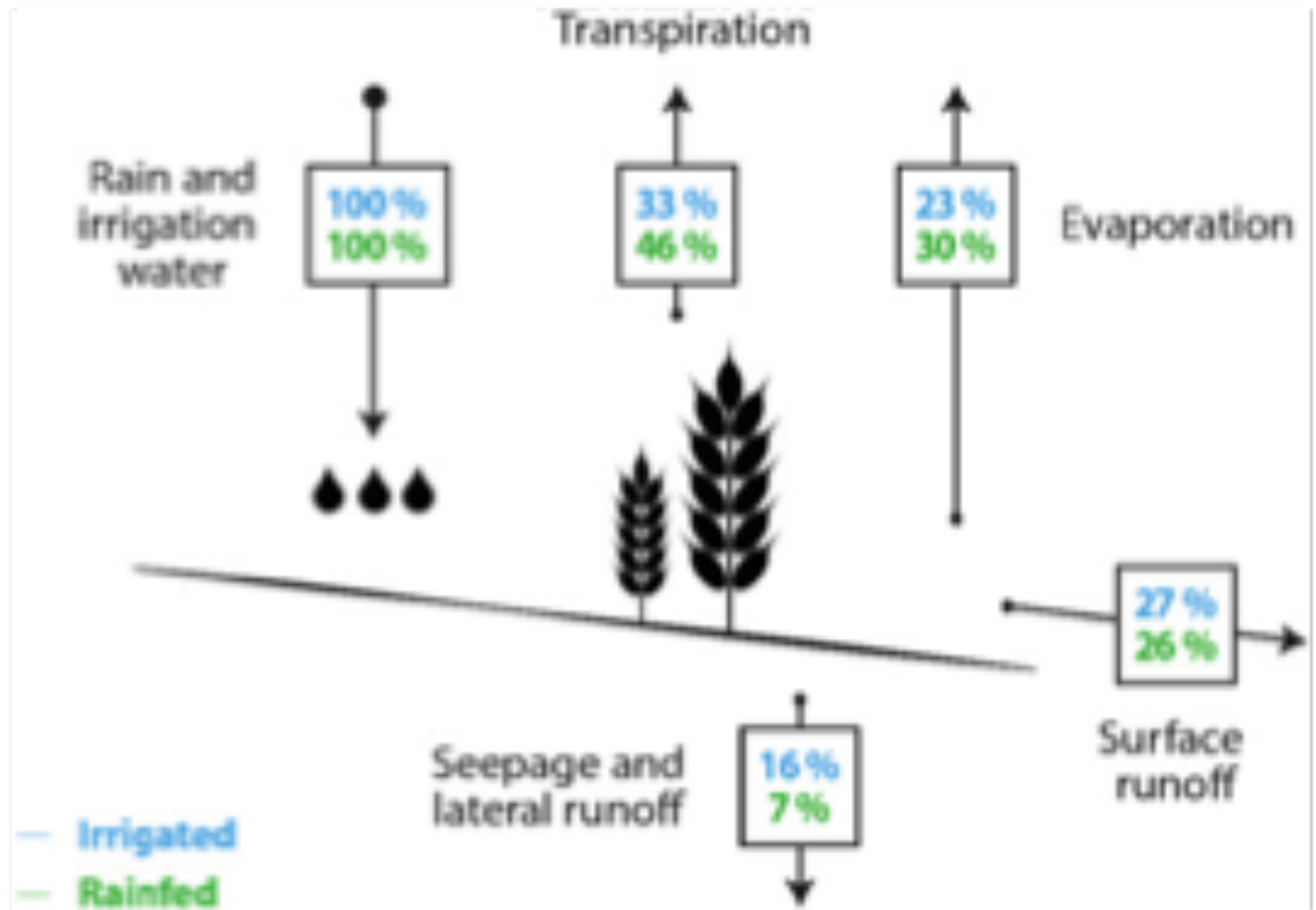
V roce 1999 existovalo v Sýrii 135 000 studní, v roce 2007 jich bylo už 213 000. V důsledku sucha tam v r. 2010 opustilo odhadem 50 000 rodin zemědělskou činnost. **Synergie:** Zhroucení globálního trhu s potravinami.

# “Arabské jaro 2011” - ve skutečnosti začátek dlouhé “arabské noci”



2010 Wheat imports per capita			Per capita		Age
Rank	Country	Metric tons (in '000s)	Income (in U.S. dollars)	Food - percent of income	Percent under 25 years
1	UAE	370.659	47,400	8.7	31.1
2	Libya	242.803	12,062	37.2	47.4
3	Israel	238.968	27,085	17.6	43
4	Jordan	173.611	4,435	40.7	54.4
5	Algeria	101.439	4,477	43.7	47.5
6	Tunisia	89.330	4,160	35.6	43.2
7	Yemen	86.843	1,230	45	65.5
8	Egypt	81.284	2,771	38.8	52.4
9	Iraq	76.701	2,625	35	60.6
10	Cuba	70.503	5,000	n/a	34.6

V tradičním zemědělství se většina vody neúčinně ztrácí:





## “Zemědělství 4.0” - globální zřejmě jediná naděje

Kapkové zavlažování (*drop irrigation*)  
skleníky, mulče  
zpětnovazebná regulace,  
automatizace





# Děkuji za pozornost !

