Water Depletion using WaterGap 3

Metadata and Technical Documentation

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Abstract: Water depletion is a measure of the fraction of available renewable water consumptively used by human activities within a watershed. Our characterization of water depletion uses calculations from WaterGAP3 to assess long-term average annual consumed fraction of renewably available water, then integrates seasonal depletion and dry-year depletion, also based on WaterGAP3 calculations, with average annual depletion into a unified scale. There are 8 water depletion categories: <5% depleted, 5-25% depleted, 25-50% depleted, 50-75% depleted, dry-year depleted, seasonally depleted, 75-100% depleted, and >100% depleted. For data reliability reasons, we include only the 15,091 watersheds larger than 1,000 km^2, which constitute 90% of total land area. A large number of small coastal watersheds are excluded. Detailed information can be found in the open-access paper "Water Depletion: An improved metric for incorporating seasonal and dry-year water scarcity into water risk assessments" online at Elementa: Science of the Anthropocene < http://elementascience.org/>

Citation:
Brauman, KA, BD Richter, S Postel, M Malby, M Flörke. (*2016*) "Water Depletion: An improved metric for incorporating seasonal and dry-year water scarcity into water risk assessments."
Elementa: Science of the Anthropocene

Use Agreement:
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For additional information regarding publications and research, visit
http://www.watergap.de/
or

Data Products:

The following data products are included:

- **WaterGAP 3 basins (shapefile)**
  - Annual water depletion categories
    - <5%
    - 5-25%
    - Dry-Year
    - Seasonal
    - 75-100%
    - >100%
  - ContUID : Continent-based unique basin ID
  - SubBas_ID: Unique basin ID, by continent (not globally unique)
- **Annual water depletion (geotiff)**
  - Annual water depletion categories
    - **1**= <5%
    - **2**= 5-25%
    - **5**= Dry-Year
    - **6**= Seasonal
    - **7**= 75-100%
    - **8**= >100%

Formats:

All data are provided in the following formats:

- .tif : Geotiff (More information: http://trac.osgeo.org/geotiff/)
- .shp : Shapefile (More information: https://en.wikipedia.org/wiki/Shapefile)

Resolution:

- Geotiff: Five minute by five minute resolution (~10km x 10km at equator)
- Shapefile contains 15,084 feature basins. Basins of area smaller than 1,000 km^2 were omitted from this study, and are not included.

Map Projection:

- Data presented as five-arc-minute, 4320 x 2160 cell grid
- Spatial Reference: GCS_WGS_1984
- Datum: D_WGS_1984
- Cell size: 0.083333 degrees
- Layer extent:
  - Top : **Geotiff:** 90, **Shapefile:** 83.249970
  - Left: **Geotiff:** -180, **Shapefile:** -179.916667
  - Right: **Geotiff:** 180, **Shapefile:** 179.999856
  - Bottom: **Geotiff:** -90, **Shapefile:** -54.833289