Oki laboratory

[Development of new evaluation method of water footprint with regional water availability]

&

[Appropriate policies and cooperation in global community against Climate Change]

http://hydro.iis.u-tokyo.ac.jp

Global Hydrological System

Development of new evaluation method of water footprint with regional water availability

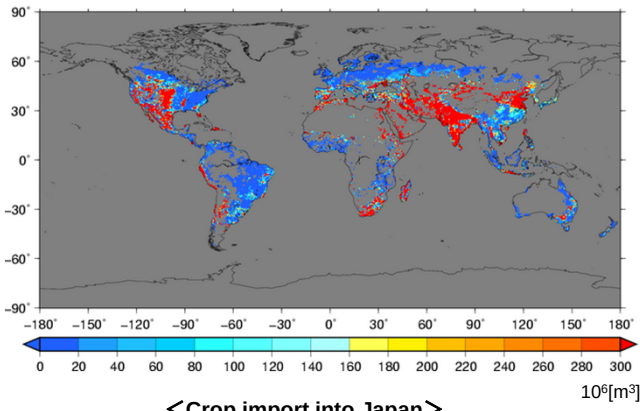
◆ **Water footprint** , an impact assessment tool of water resources

"Water footprint," which is a total amount of water used for production of, for example, food, is getting a lot more attention lately as an index for water resources management.
Although preciousness of water should depend on region due to its uneven distribution, "water footprint" has not considered it.

Therefore, we introduce the concept of preciousness and improved "water footprint" as an evaluation tool.
Preciousness is estimated by characterization coefficient that can convert quantity of water intake into precipitation amount needed to meet the water demand.

Here, we show results of quantification and evaluation of impact of water use using the improved "water footprint" on food production.

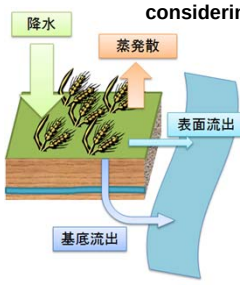
Impact distribution of yearly irrigation water use



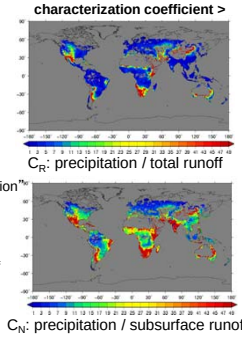
What is characterization coefficient ??

→ precipitation needed to meet unit amount of water demand

Water resource availability considering its sources



< Global Map of characterization coefficient >

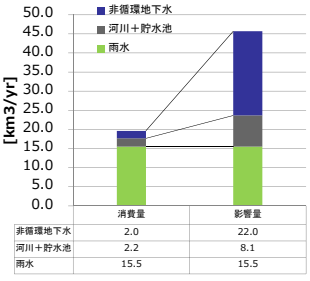


C_R: precipitation / total runoff

C_N: precipitation / subsurface runoff

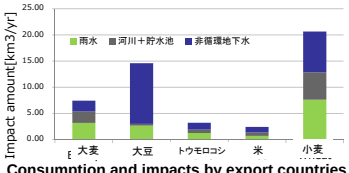
＜Crop import into Japan＞

Total consumption and impact in export countries

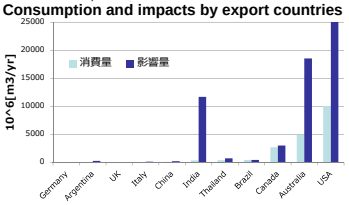


	消費量	影響量
非循環地下水	2.0	22.0
河川＋貯水池	2.2	8.1
雨水	15.5	15.5

Impact classified by crops



Consumption and impacts by export countries



Appropriate policies and cooperation in global community against Climate Change

On scenes of international negotiation on climate change, countries' assertions conflict each other. Developing countries claim adaptation and developed countries demand mitigation. By analyzing costs and impacts of world-level climate change remedies, we aimed to quantitatively verify rationality of international positions, and to understand the characteristics of the quantitative analysis.

In order to do them, we utilized RICE-model, which is a kind of an integrated evaluation model, and we newly introduced adaptation factor as a variable of the model.

This study shows it is likely that adaptation is more efficient in Japan and U.S.A than in EU. However, in the long run, balanced application of adaptation and mitigation is the most efficient choice over all regions.

Climate change cost for each scenario