



Template product information package

<u>Product</u>	Normalized Difference Water Index
<u>Participant ID</u>	VITO

1. **General Information**

It is well known that the SWIR is absorbed by water, being it free water bodies or the water contained in plant cells. To assess water content in a normalised way, the NDWI (normalised difference water index) was introduced by Gao (1996). This index increases with vegetation water content or from dry soil to free water.

2. **Application of the product**

NDWI can be used to detect drought stress.

3. **Algorithmic methodology**

$$NDWI = \frac{NIR - SWIR}{NIR + SWIR}$$

4. **Ancillary data**

N/A

5. **Examples**

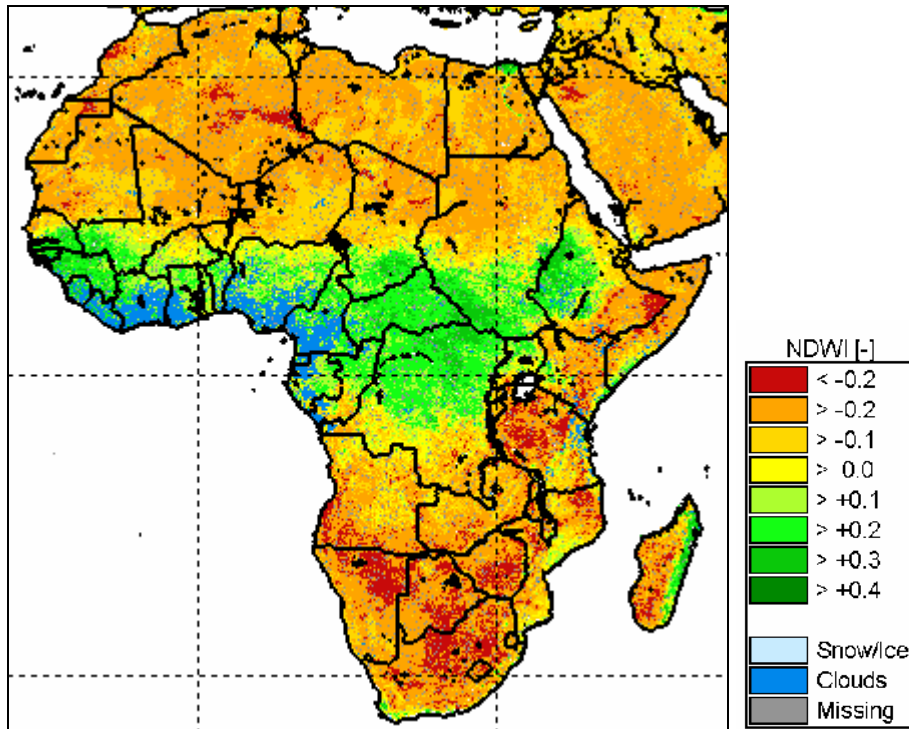


Figure1: NDWI over Africa, dekad 2 of July 2004

6. Validation evidence

Validated by Gao (1996)

Validated in Belgium: 2003 summer drought – Horion et al. (2004)

7. Estimated cost from 'pre-operational' to 'operational'

NDWI is published, so no IPR problems arise in case of redevelopment.

The NDWI product is made by a very simple formula.

VITO estimates that development of the NDWI for VGT4AFRICA would take **1 week**.

8. References

Gao, B.C., 1996, "NDWI - A normalized difference water index for remote sensing of vegetation liquid water from space". *Remote Sensing of Environment*, Vol. 58: 257-266 (see annexes)

Horion, S., Eerens, H., Tychon, B., Ozer, P., 2004, "Detection and monitoring of dry events with SPOT-VEGETATION imagery", *Development of an agri-environmental monitoring system for the Chinese Province Heilongjiang. Proceedings of the Mid-term meeting, Arlon, 22-23 April 2004*. (see annexes)

Serrano, L., Ustin, S. L., Roberts, D. A., Gamon, J. A., & Penuelas, J. (2000). "Deriving water content of chaparral vegetation from AVIRIS data". *Remote Sensing of Environment*, Vol 74: 570– 681. (see annexes)

Thomas J. Jacksona,*, Daoyi Chenb, Michael Cosha, Fuqin Lia, Martha Andersonc, Charles Walthalla, Paul Doriaswamy, E. Ray Hunta, (2003). "Vegetation water content mapping using Landsat data derived



normalized difference water index for corn and soybeans. *Remote Sensing of Environment*, Vol. 92: 475-482
(see annexes)

9. Technical product sheet

<u>Product name</u> <i>Normalized Difference Water Index</i>
<u>Algorithmic Methodology</u> $NDWI = \frac{NIR - SWIR}{NIR + SWIR}$
<u>Geometric Resolution</u> <i>1km</i>
<u>Product Accuracy</u>
<u>Frequency Delivery</u> <i>Every 10 days</i>
<u>Ancillary data</u> N/A
<u>Delivery time</u> <i>End of 10-day period + 3</i>
<u>Archive</u> <i>April 1998-present</i>