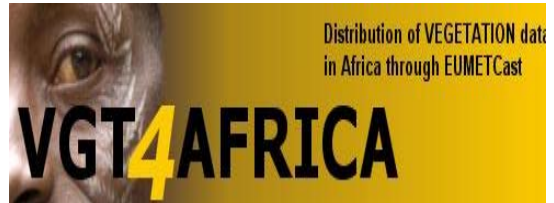




EUROPEAN COMMISSION
DIRECTORATE GENERAL
Joint Research Centre



MEDIAS



VGT4AFRICA Technical Note: WinDisp conversion



Table of Contents

1. General..... 3

 1.1. Scope..... 3

 1.2. Terms and abbreviations..... 3

 1.3. Reference documents 3

 1.4. Expected impact 4

 1.5. Revisions..... 4

 1.6. Intended readers..... 4

2. WinDisp IDA format conversion factors..... 5

 2.1. General notes on conversion to WinDisp IDA format 5

 2.2. Overview of scale/offset factors..... 6

3. Planned corrective actions 7

<u>Authors</u>	VITO Tim Jacobs
-----------------------	----------------------------

1. General

1.1. *Scope*

VGTEExtract helps users to convert the data, from the original format (ZIP file, containing HDF data files, a TIFF quicklook image and a few metadata files) to a variety of different formats like GeoTiff, Envi, ERMapper. One of the output formats, WinDisp IDA, is needed to import the data into FAO's WinDisp (versions 4 and 5).

However, the problem is that this WinDisp IDA format only allows 8-bits-per-pixel, whereas some of the provided datasets contain 16 bits-per-pixel. In other words, some of the provided data must be (further) encoded with scale/offset in order to make it fit into the WinDisp IDA format.

In the current version of VGTEExtract, it is however not trivial to find the conversion parameters to use for the conversions to the WinDisp IDA format. Therefore, a set of default factors are listed here for reference. Users may of course still use different factors, if applicable.

1.2. *Terms and abbreviations*

Terms	Description
byte	8 bits
short	16 bits
signed / unsigned	With / without sign-bit for negative numbers.
product	A ZIP file following the VGT4Africa file naming convention (see VGT4Africa User Manual) and containing HDF data files (datasets), a grayscale TIFF quicklook image and a few metadata files.

1.3. *Reference documents*

Bartholomé, E. (editor), 2006. VGT4Africa user manual. 1st edition. EUR 22344 EN, European Communities. Available online in English and French at <http://www.vgt4africa.org/ViewContent.do?pageId=40> (last checked on 2008-12-03).

Derwae, J., Van Roey, T., Jacobs, T., 2006. VGTEExtract User Guide, VITO, Mol, Belgium. Available online in English at <http://www.vgt4africa.org/ViewContent.do?pageId=40>

1.4. Expected impact

Later on, the technical details will be further completed with general decoding details (scale/offset used in the original data -if any-, flag values, etc). This will be done as part of an update of the VGTExtract User's Guide.

When VGTExtract is updated, this technical note may require an update as well.

In the short term, this document should however help users to convert the VGT4Africa data to the WinDisp IDA format.

1.5. Revisions

Version	Date	Revisions by	Description
1.0	2008-12-03	VITO Tim Jacobs	Original document

1.6. Intended readers

This document is intended for all users of the VGT4Africa data.

Comments and suggestions are welcome via e-mail to the help desk, info@vgt4africa.org.

2. WinDisp IDA format conversion factors

2.1. *General notes on conversion to WinDisp IDA format*

The below notes are written for VGTEExtract, version 1.1.43 (major version 1, minor version 1, build number 43). If you have an older version, please upgrade VGTEExtract.

When processing only products of the same type, the scale/offset can be entered on VGTEExtract's Output settings tab. When processing multiple types of VGT4Africa data (i.e. NDVI, NDWI, DMP,...) together, the user must use the Product Specific settings. These can be accessed and edited on the "Product Specific" tab of the VGTEExtract settings window, but only if the checkbox "use Product Specific settings" at the bottom is checked.

The user is always free to enter different scale/offset conversion parameters than those listed in this document. This is however only recommended for advanced users, as it may affect data precision (i.e. level of detail in the dataset).

The current version of VGTEExtract does not add slope/intercept information to the WinDisp IDA formatted file. This information can be added manually in WinDisp and are useful to make WinDisp show the physical values (i.e. the amount of dry matter per ha per day for DMP, -1 ... +1 for NDWI), rather than the encoded binary values (i.e. 0...255 for NDVI).

A bug, reported for version 1.1.43 (& earlier), may prevent VGTEExtract from applying the configured offset parameter. This bug is under investigation by VITO. In the meantime, other freeware programs such as Frank Warmerdam's tools (FWTools / Open EV) may be used to perform the offset operation.

The Phenology, LAI, FCOVER and Albedo products have been split over multiple partial products to reduce the file size for the EUMETCast dissemination and web downloads. Though this split may be undone later on, it is important to consider this at this moment. In particular:

- The Phenology data is now split across the PHENOKS (Key Stages) and PHENOMAX (max NDVI in season) products.
- LAI and FCOVER products only contain the LAI & FCOVER values, plus error budgets. BIOQ products contain quality information about the LAI & FCOVER data.
- ALBEDO data is spread over BBDHRT (total wavelength range), BBDHRV (only visible wavelength range), BBDHRN (only Near-Infrared wavelengths), ALBE (error budgets on BBDHRT, BBDHRV and BBDHRN) and ALBQ (quality-related information).

As some of the original data is already encoded to minimize the file size, applying a further scale/offset as part of the conversion to WinDisp format will be on top of the original encoding. This needs to be accounted for when trying to decode the binary values back to the physical ones.

Reducing the number of bits-per-pixel from 16 to 8 may introduce loss of detail in the data, or may loose certain flagged information. For instance, compressing the DMP flag values (-300, -257

2.2. Overview of scale/offset factors

The below table only lists those datasets for which a specific scale / offset parameter needs to be entered into VGTEExtract's configuration to make the conversion to the WinDisp IDA format work properly. For all other datasets, the default scale (1) and offset (0) apply.

Product type	Dataset	Scale	Offset	Notes			
DMP	DMP	0.00765	3				
SWB	WBS	1	Offset depending on dekad	These datasets contain dates, expressed as number of dekads since given reference (1980-01-01). To convert to 8-bits-per-pixel, you can create a new reference dekad, i.e. by simply subtracting a certain number of years or dekads. Take into account that the products can look as far as 54 dekads (1.5 years) into the past. For instance: for data of 2 nd half 2008, you can use 2007-01-01 as new reference.			
	WBE						
PHENOKS	PHSTART						
	PHHALF						
PHENOMAX	PHMAX						
PHENOMON	PHSMON						
	PHMAXMON						
BBDHRN	BBDHR				0.0078125	0	
BBDHRV	BBDHR_VIS						
BBDHRT	BBDHR_NIR						
ALBE	ERR_BBDHR						
	ERR_BBDHR_VIS						
	ERR_BBDHR_NIR						



3. Planned corrective actions

- Updating VGTEExtract to fix the offset-bug.
- Updating VGTEExtract user's guide to be more user friendly and to contain more details on the conversions to the different output formats, including some information copied from this document;
- Make the integration with WinDisp smoother (i.e. adding slope/intercept information to the WinDisp IDA-formatted file, if feasible.
- Provide VGT4Africa_conv application from JRC on the website, to assist in calculating the number of dekads to subtract for SWB & PHENO datasets.