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HadISDH.land Data Format Description

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- 2) Description of ASCII file format

1) Tables of netCDF file variable names, descriptions and dimensions

Table 1. Generic Dimensions for HadISDH.land

Dimension Name	Dimensions		
time	??? months		
month	12 months		
characters	10 characters		
latitude	36 5° gridboxes		
longitude	72 5° gridboxes		
bound_pairs	2 elements		

Table 2. Generic Variables for HadISDH.land

Variable	standard	c variables for ria				
Name	_name	long_name	units	Dimensions	cell_methods	comments
time	time	time	days since 1973-1-1 00:00:00	time		
bounds_ti me	time	time period boundaries		time, bound_pairs		
month		month of year		month, characters		
climbounds		climatology period boundaries		month, bound_pairs, characters		
latitude	latitude	gridbox centre latitude	degrees_ north	latitude		
bounds_lat	latitude	latitude gridbox boundaries		latitude, bound_pairs		
longitude	longitude	gridbox centre longitude	degrees_ east	longitude		
bounds_lon g	longitude	longitude gridbox boundaries		longitude, bound_pairs		
meanstnco unt		mean number of stations within gridbox	1	latitude, Iongitude	time: mean (interval: 1 month) area: sum where land (stations within gridbox)	
stncount		actual number of stations within gridbox	1		time: sum (interval: 1 month) area: sum where land (stations within gridbox)	

Т	1	1		I	. ,.
					gridbox mean
	uncorrelated combined 1	g/kg, hPa, deg C,			monthly station
stdunc			time,		uncertainty and
	sigma		latitude,		gridbox sampling
	uncertainty for	%rh	longitude		uncertainty combined
	gridbox				in quadrature
					assumed uncorrelated
					gridbox sampling
	uncorrelated 1				uncertainty (Jones et
	sigma	g/kg, hPa,	time,	area: mean where	al 1997) based on
sampunc	sampling	deg C,	latitude,	land (stations within	spatio-temporal
	uncertainty for	%rh	longitude	gridbox)	station presence and
	gridbox		Ü	,	intersite correlation
	0 111				assumed uncorrelated
					gridbox mean
					monthly
					measurement,
				time: mean (interval: 1	adjustment and
	uncorrelated 1	g/kg, hPa,	time,	month) area: mean	climatology
stnunc	sigma station	deg C,	latitude,	where land (stations	uncertainty combined
Stridile	uncertainty for	%rh		within gridbox	in quadrature for
	gridbox	70111	longitude	combined in	each station and then
				quadtrature)	in quadrature over
					the gridbox assumed
					to be uncorrelated
				time: mean (interval: 1	gridbox mean monthly
	uncorrelated 1			time: mean (interval: 1	measurement
	sigma	g/kg, hPa, deg C, %rh	time,	month) area: mean where land (stations	
measunc	measurement		latitude,	· ·	uncertainty for each station combined in
	uncertainty for gridbox		longitude	within gridbox combined in	
				quadtrature)	quadrature over the
				quadirature)	gridbox assumed to be uncorrelated
	11000 molete d 4				gridbox mean
	uncorrelated 1	-/l l-D-	#:	area: mean where land (stations within gridbox combined in quadtrature)	monthly climatology
alima m -	sigma	g/kg, hPa, deg C,	time,		uncertainty for each
climunc	climatology		latitude,		station combined in
	uncertainty for	%rh	longitude		quadrature over the
	gridbox				gridbox assumed to
					be uncorrelated
					gridbox mean
	uncorrelated 1 sigma				monthly adjustment
		g/kg, hPa,	time,	area: mean where	(applied and missed)
adjunc	adjustment	deg C,	latitude, longitude	land (stations within gridbox combined in quadtrature)	uncertainty for each
	uncertainty for	%rh			station combined in
	gridbox	/0111			quadrature over the
					gridbox assumed to
					be uncorrelated
	intersite		latitude,		intersite correlation
rbar	correlation	1	longitude		for each gridbox
	(rbar)		- 0.13.55		following Jones et al

					1997 (rbar)
sbar2		mean gridbox variance	g/kg, hPa, deg C,	latitude, longitude	mean variance over all stations in gridbox following Jones et al
	(sbar2)	%rh	5 6 11 1	1997 (sbar2)	

Table 3. Generic Global Attributes for HadISDH.land

Global Attribute Name	Description
File_created	YYYY-MM-DD HH:MM:SS
Title	title of product
Institution	list of contributing institutions
History	links to further information (additional references, web pages, blogs, twitter handles)
Licence	licensing statement with link to license and instructions on how to cite the data product
Project	overarching project with web page link
Processing_level	brief summary of processes applied to data from source to product
Source	source input data
Comment	any other notes of interest
References	Key journal article to be cited and read for more information
Creator_name	name of main contact author
Creator_email	email for main contact
Version	vX.Y.Z.YYYYp/f: X = major update, Y = minor update, Z = small bug fix or historical data change, YYYY = last year of record, p/f = provisional (p) or final (f)
doi	issued doi for this version
Conventions	CF version that the netCDF file has been checked against

Table 4. Variables for HadISDH.landq/RH/e/Td/Tw/T/DPD. Units are g/kg, %rh, hPa, deg C, deg C, deg C and deg C respectively.

Variable	standard	-	Dimensions	cell_methods	comments
Name	_name	long_name	Difficusions	ceii_iiietiious	comments
hussa/ hursa/ vpsa/ tdsa/ twsa/ tasa/ dpdsa	-/ -/ -/ -/ / air_temp erature_a nomaly/ -	near surface (~2m) specific humidity/ relative humidity/ vapour pressure/ dew point temperature/ wet bulb temperature/ air temperature/ dew point depression anomaly	time, latitude, longitude	time: mean (interval: 1 month comment: anomaly from climatology) area: mean where land (stations within gridbox)	gridbox mean monthly mean climate anomaly from stations
huss/	specific_h	near surface	time,	time: mean	gridbox mean
hurs/	umidity/	(~2m) specific	latitude,	(interval: 1	monthly mean from
vps/tds/	relative_h	humidity/	longitude	month) area:	stations

tws/tas/	umidity/ -	relative		mean where land	
dpds/	/ dew	humidity/		(stations within	
ap 3.57	point	vapour		gridbox)	
	temperat	pressure/ dew		8	
	ure/ wet	point			
	bulb	temperature/			
	temperat	wet bulb			
	ure/ air	temperature/			
	temperat	air			
	ure/ dew	temperature/			
	point	dew point			
	depressio	depression			
	n/	·			
	•	near surface			
		(~2m) specific			
		humidity/			
		relative			
		humidity/			
		vapour		4 :	
		pressure/ dew		time: mean	gridbox standard
		point	time,	(interval: 1	deviation of
std		temperature/	latitude,	month) area: variance where	monthly mean
		wet bulb	longitude		climate anomaly
		temperature/		land (stations within gridbox)	from stations
		air		within gridbox)	
		temperature/			
		dew point			
		depression			
		standard			
		deviation			
		near surface			
		(~2m) specific			
		humidity/			
		relative		time: mean	
		humidity/		(interval: 1 month	
		vapour		comment: over	
		pressure/ dew	time,	30 year	gridbox mean of
clm		point	latitude,	climatology	monthly mean from
Cilli		temperature/	longitude	period) area:	stations
		wet bulb	iongituae	mean where land	314110113
		temperature/		(stations within	
		air		gridbox)	
		temperature/		5.12.00//	
		dew point			
		depression			
		climatology			

There is an ASCII format file for each variable containing the gridded values for actual (_actual), anomalies (_anomaly7605) and 2 sigma combined (station [measurement, climatology and homogeneity adjustment] and gridbox spatio-temporal sampling) uncertainties (_uncertainty2sig):

e.g., huss_HadISDH_HadOBS_19730101-20141231_v2-0-1-2014p_actual.dat huss_HadISDH_HadOBS_19730101-20141231_v2-0-1-2014p_anomaly7605.dat huss_HadISDH_HadOBS_19730101-20141231_v2-0-1-2014p_uncertainty2sig.dat

The ASCII version of the gridded data lists each month in turn (from January 1973 to the most recent December) identified by a single row with a four character integer for the year (YYYY), a space and a three character string for the month name (MMM).

Each month has 72 columns of longitude (-177.5W to 177.5E grid cell centres) and 36 rows of latitude (-87.5S to 87.5N grid cell centres). The longitudes and latitudes are listed at file end.

Missing data are identified by -9999.99.

Units are in g/kg, %rh, hPa or degrees C depending on the variable. See Tables 1 to 4 for variable names and descriptions and other information about the product.