Station Exposure Description

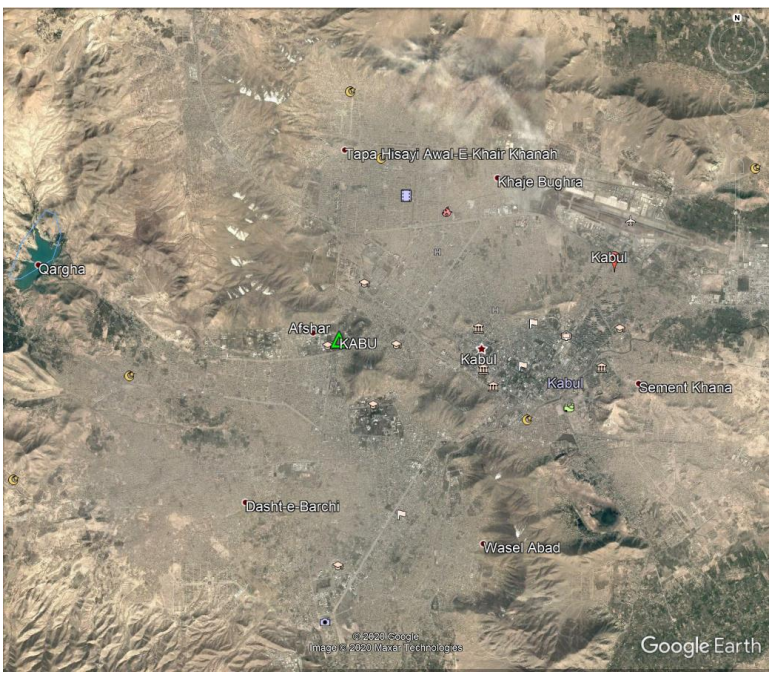
Station: Kabul

Station short name:	KABU	Operational since:	20.04.2015
Latitude:	34° 32' 8.104"N	Country:	Islamic Republic of Afghanistan
Longitude:	69° 7'22.42"E	Province:	Kabul
Elevation [m a.s.l.]:	1813m	River basin:	Kabul river

Site Characteristics

Station location:

View to the station from SE



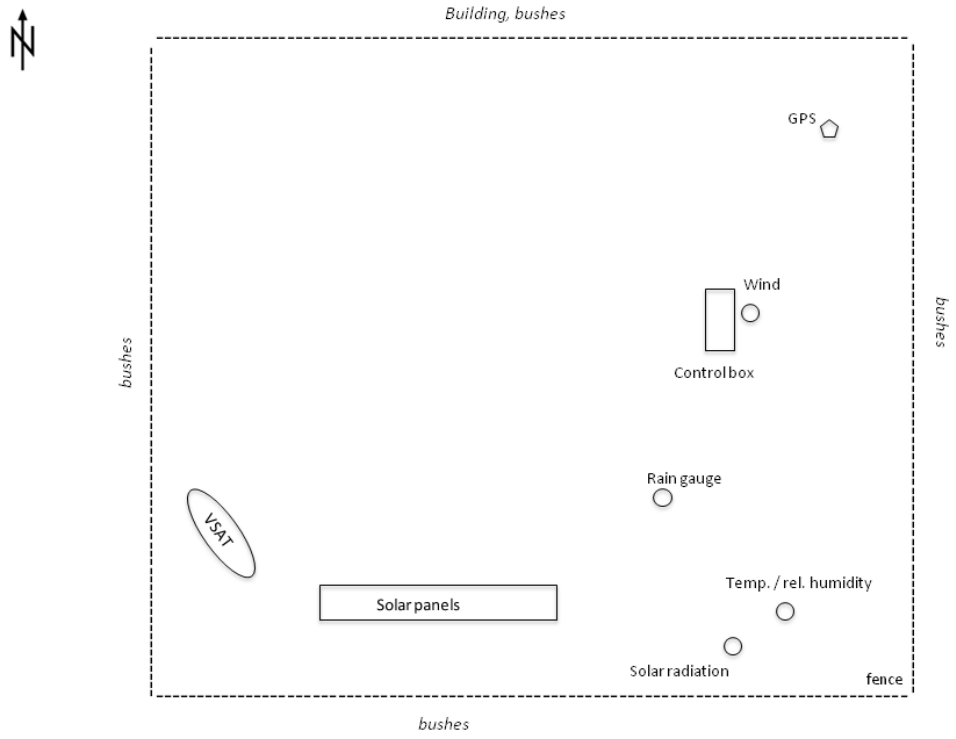
Station location and surroundings

Station Exposure Description

Terrain features:

Degree of urbanization in the surroundings:	University campus, in the immediate surrounding small fruit trees and unfruitful trees, further North and North West residential buildings such as mosque and residential apartments (for KPU staff).
Landscape type (e.g. mountains, coast):	Hillside of Afshar mountains, belonging to Kabul river basin area
Direction of slope: Steep slopes, hills, hollows?	From North East to South West steep slops of hillside
Impervious surface, pavements:	There is a road nearby the station, approx. 20 to 30m to West
Open water surfaces:	Not existent
Main surface cover in the surroundings:	Almost trees, mountains, plants, grass, sandy soil and hare racks

Station map:



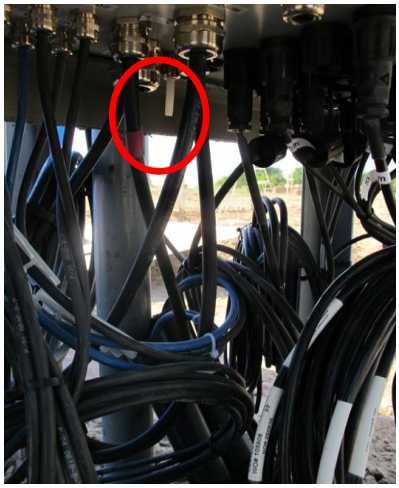
Notes and remarks:

Station Exposure Description

Sensor exposure

Atmospheric pressure:

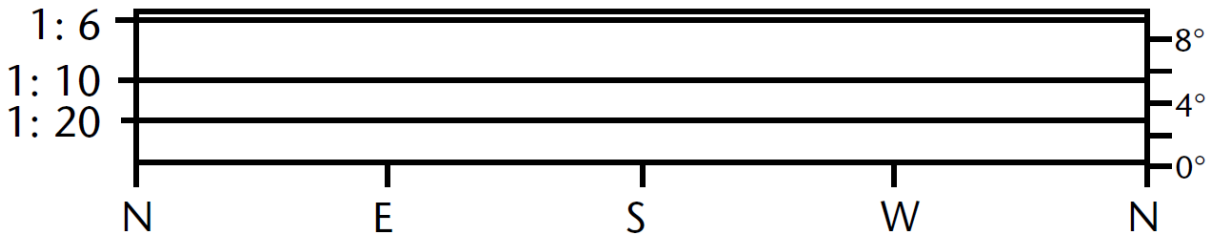
Sheltered within control cabinet?	Yes
Protected from wind gusts?	Yes



Solar radiation:

Sensor height above ground:	2.10 m (center of device)

Description of radiation horizon (average vertical angle of obstacles)



Temperature and humidity:

Sensor height in m above ground:	1,95 m (bottom edge of radiation shield)
Artificial ventilation?	Principally available, but not activated
Surface cover under screen:	Almost bare soil, some hard rocks, in spring some grass
Soil under screen:	Sand soil, some gravel

Precipitation:

Gage rim height in m above ground:	2,2 m
Shield type:	none
Alignment of main axis of tipping bucket:	Unknown
Fixation:	Not fixed

Station Exposure Description

Wind:

Anemometer height in m above ground:	10.00 m	
Orientation of junction box	?	
Free standing?	Yes	
If not free standing:		
Building height, width, length in m		
Vegetation:		
Terrain roughness class:	to N: 3	to E: 3
	to S: 3	to W: 3

Soil temperature and soil water content:

Sensor depths in m below ground:	10,20,40,60,80,100 cm below surface
Soil cover above the soil sensors:	Almost sand soil, in spring some grass
Soil type:	
Soil structure:	Gravely clay, middle sand, soft rack
Level of water table in m below surface:	not measurable

Soil sensors locations below ground

Depth	Soil temp	VWC	Structure	
0.10			Mist, sand	
0.20			Gravel clay, sand	
0.40				
0.60			Chalky soil with soft racks	
0.80				
1.00				
1.20				

GPS:

Distance above surface:	2,2 m
Obstructions:	None

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List of installed sensors:

Measurement parameter	Manufacturer	Type
Temperature and humidity	Vaisala	HMP45
Air pressure	Setra	278
Wind	RM Young	05103-45
Precipitation	RM Young	52203
Solar radiation	Hukseflux	NR01
Soil moisture	Campbell Scientific	CS616
Soil temperature	Campbell Scientific	T107

Changes and damages:

Hardware

Date	Description of Change

Software

Date	Description of Change
15-12-2015	New datalogger CR1000-configuration (NR01 constants changed)
25-01-2016	New datalogger CR1000-configuration (internal battery)

Local Operator:

The station is built on the campus of the Kabul Polytechnic University.

Open issues / limitations:

Distances:

1. Station to solar panels: 7.2 m
2. Station to air temperature, humidity sensor: 5.3 m
3. Station to solar radiation sensor: 5.45 m
4. Station to VSAT antenna