

## Station Exposure Description

### Station: Kumbel / Кумбель

Station short name:	KMBL	Operating since:	13.09.2015
Latitude:	41°28'34.29"N	Country:	Uzbekistan
Longitude:	69°58' 43.50"E	Oblast:	Tashkent region
Elevation [m a.s.l.]:	2300m	River basin:	Chirchiq

### Site Characteristics

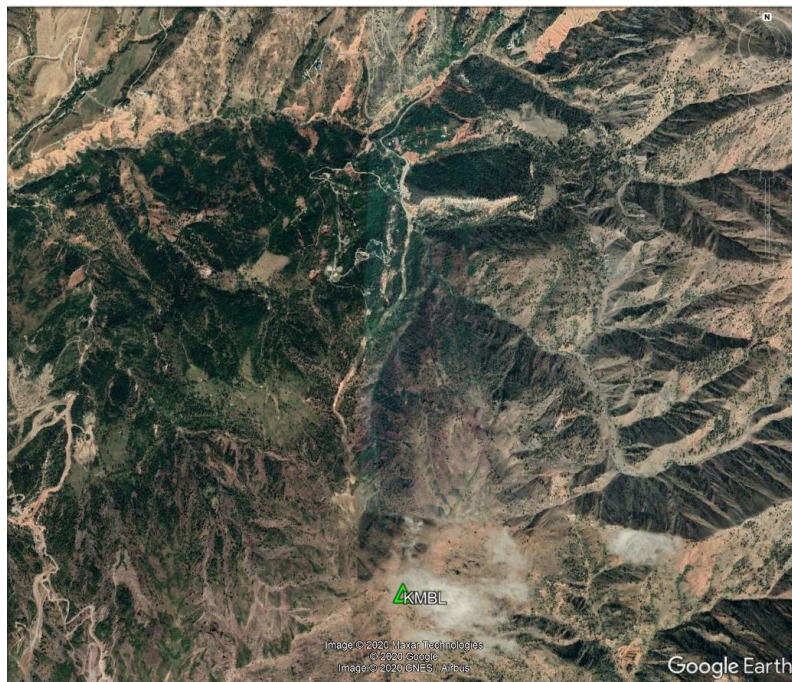
#### Station location:



*View to the station from NE*



*View to the station from NW*



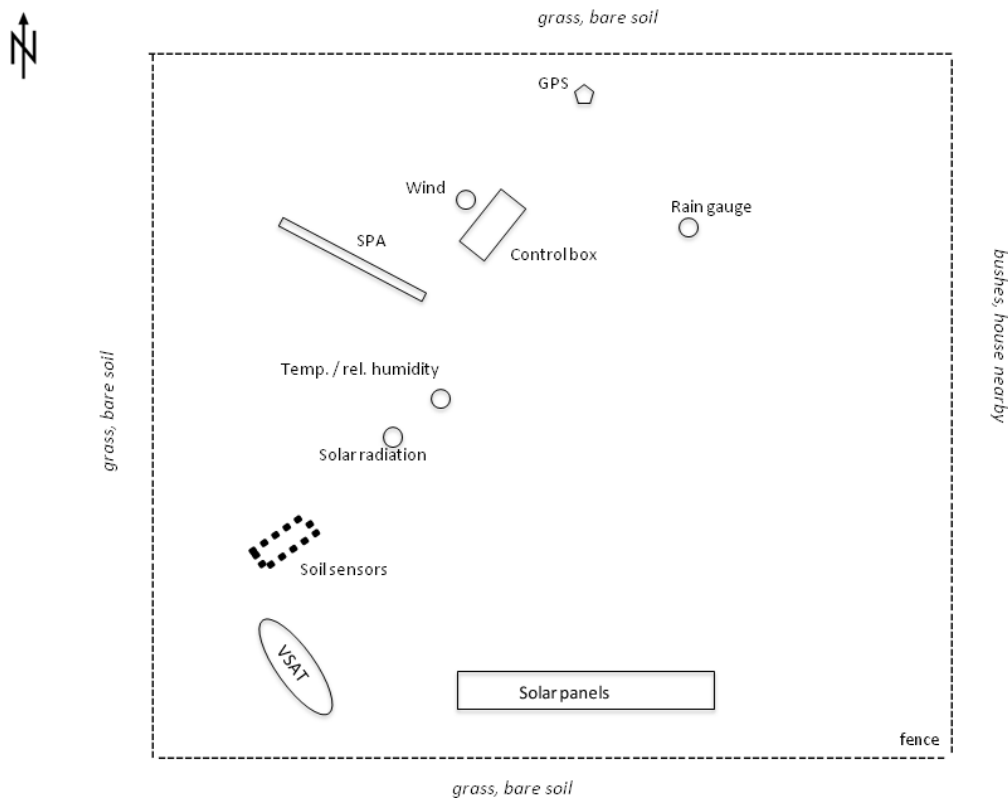
*Station location and broader surroundings*

## Station Exposure Description

### Terrain features:

Degree of urbanization in the surroundings:	No urbanization, except of a few, scattered houses
Landscape type (e.g. mountains, coast):	Station built on top of a mountain
Direction of slope: Steep slopes, hills, hollows?	Steep slope to the NW in approx. 150m distance, station is built on a plateau, hence the terrain is descending generally to all cardinal directions
Impervious surface, pavements:	Not existent
Open water surfaces:	Not existent
Main surface cover in the surroundings:	Bare soil, sandy, sparse vegetation

### Station map:



### Notes and remarks:

## Station Exposure Description

### Sensor exposure

#### Atmospheric pressure:

Sheltered within control cabinet? Yes

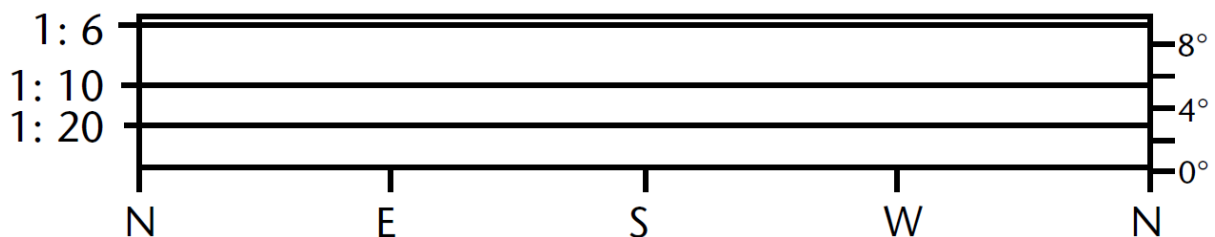
Protected from wind gusts? Yes



#### Solar radiation:

Sensor height above ground ~2.00 m

Description of radiation horizon (average vertical angle of obstacles)



#### Temperature and humidity:

Sensor height in m above ground: ~2.00 m

Artificial ventilation? no

Surface cover under screen: Sparse vegetation

Soil under screen: Gravel

#### Precipitation:

Gage rim height in m above ground: ~1.00 m

Shield type: None

Alignment of main axis of tipping bucket:

Fixation: Fixed with metal pipes

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### Wind:

Anemometer height in m above ground: 10.00 m

Orientation of junction box South

Free standing? Yes

*If not free standing:*

Building height, width, length in m

Vegetation: Grass, sparse vegetation

Terrain roughness class: to N: 1 to E: 1

(in the immediate surrounding) to S: 1 to W: 1

### Soil temperature and soil water content:

Sensor depths in m below ground: Soil Temp: 10, 20, 40, 60, 80, 100cm ; VWC: 10, 20, 40, 60, 80, 100cm


Soil cover above the soil sensors: Bare soil, sparse vegetation

Soil type: Rough sand with some stones

Soil structure: Heterogeneous sand

Level of water table in m below surface: Unknown

### Soil sensors locations below ground

Depth	Soil temp	VWC	Structure	
0.20	+	■		
0.30	+	■		
0.50	+	■		
0.70	+	■		
1.00	+	■		
1.20	+	■		

### GPS:

Distance above surface: 1,86 m

Obstructions: Open surrounding on top of a hill

## Station Exposure Description

### Snow depth and snow characteristics:

Ground cover below SPA: Bare Soil, sparse vegetation

Height of USH-8 above ground:



Snow Pack Analyzer

### List of installed sensors:

Measurement parameter	Manufacturer	Type
Temperature and humidity	Vaisala	HMP155
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
Snow parameters	Sommer	SPA + USH8

### Changes and damages:

#### Hardware

Date	Description of Change
18-06-2016	SPA box changed
30-08-2017	SPA bands changed
07-10-2018	Transport lock of rain sensor removed, SPA bands straightened and tensioned
28-09-2019	3 SPA bands changed and SPA turned to 180° azimuth

#### Software

Date	Description of Change
25-01-2016	CR1000-config changed (internal battery)

## *Station Exposure Description*

**Local Operator:**

There are people working at the observatory which is adjacent to the station.

**Open issues / limitations:**

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