

TURNING INFORMATION INTO PROFITS.



**Flood
monitoring**

Overview

- Prevention, prevision, mitigation and flooding control.
- When river levels rise to pre-set threshold levels, the sensors send out a warning on the user via SMS.
- Our devices have long battery life and reliable communication in extreme weather conditions.
- Water level sensors for depth or level measurement in wells, dams and open waters (rivers and lakes).



Instruments and sensors for Flood monitoring

PESSL INSTRUMENTS WATER LEVEL

- Precision of 3 mm
- Integrated barometric sensor module to increase the precision.



PESSL INSTRUMENTS ULTRASONIC WATER LEVEL

- Non-invasive sensor
- Resolution of 1 mm
- Measurement range 0 to 10 m



Sensors as support

RAIN GAUGE

- Precipitation patterns and event
- Help system operator to understand and predict run-off

SOIL MOISTURE SENSORS

- Check for the water saturation of the aquifer
- Flood prediction

Instruments and sensors for Flood monitoring

PI WATER LEVEL

- It measures the hydrostatic pressure with Temperature and Pressure compensation
- Installation: the submersible pressure sensor may be placed slightly below the lowest expected water level. It needs to be placed in a metal tube (see next figures)
- 2 models are available: 1 bar (10 m water column) with 15m cable and 2 bar (20m water column) with 25m cable

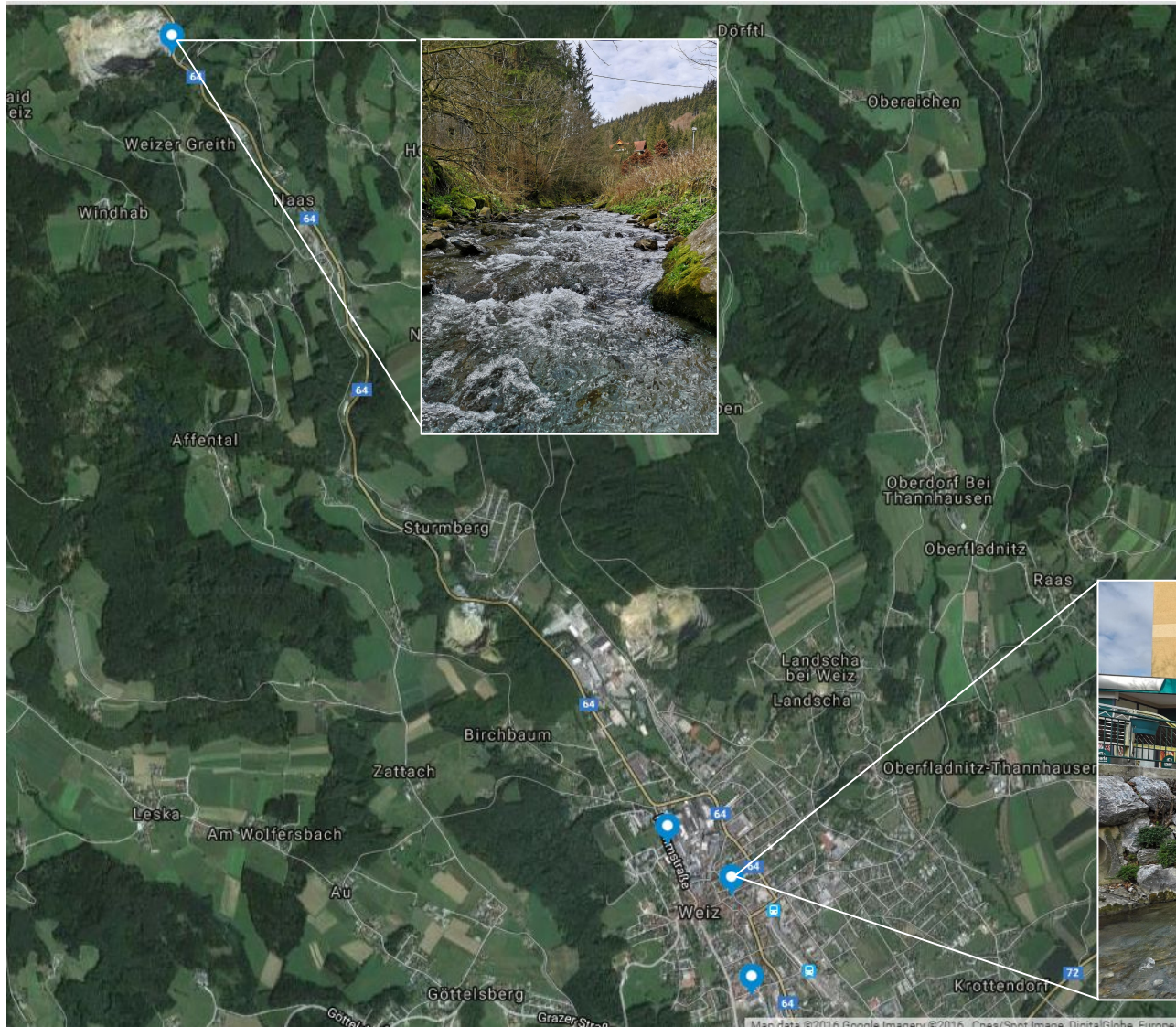


PI ULTRASONIC WATER LEVEL

- Installation on the bridge or at one side of the river with the tripod



Use case: Flood warning in Weiz (AUT)



Hydrometeorological monitoring network provides real-time flood warnings:

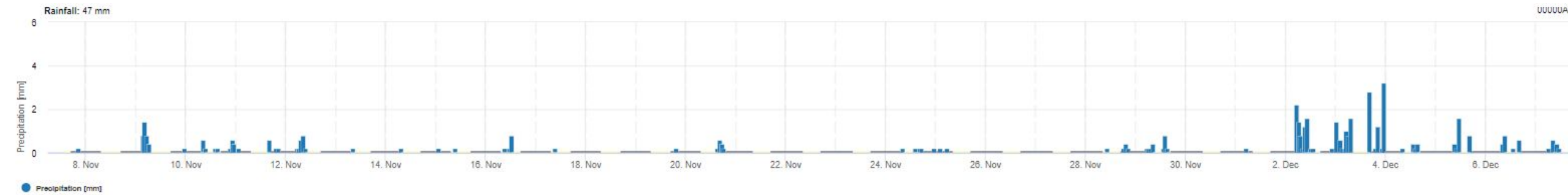
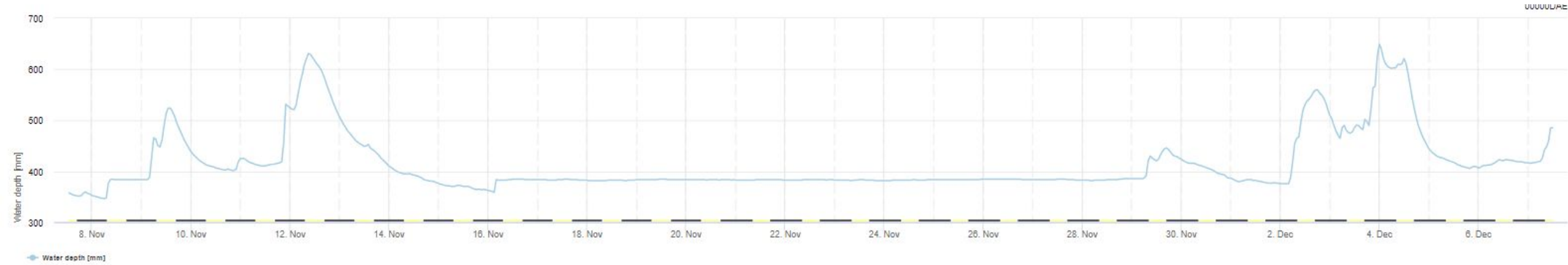
- Flood monitoring and forecasting system
- Network is composed by 5 stations to monitor hydrology, rain and other key meteorological parameter
- Prevent flooding in the city
- Measurement interval of five minutes
- Data collected from the sensors are automatically sent every 10 minutes to Fieldclimate platform
- Data sourced from PI network are received by firefighters of Weiz, which play an essential role for the management of emergencies in case of heavy storms, being in charge for the emission of alarms to population and, in most serious cases, the evacuation of people.



Use case: Flood warning in Weiz (AUT)



Water level data in Fieldclimate



Use case: Flood warning in Weiz (AUT)



STADTFEUERWEHR WEIZ

Diensthabende Gruppe: EG 021 → Service & Sicherheit → Wetterstationen

13.0 °C Unwetter
 0.4 km/h Pegelstände
 0 mm Niederschlag
 0.111 µSv/h

Wetterstationen

Wetterstationen im Raum Weiz

Derzeit sind im Raum Weiz sechs Wetterstationen in Betrieb. Die Stationen wurden in der Florianigasse (Feuerwehrhaus - S1), zwei in der Weizklamm (Weizbach Höhe Kreuzwirt - S2 und Steinbruch Fa. Marko - S3), in der Europa-Allee (Weizbach Höhe Weizbach-Promenade - S4), in der Waldgasse (Zattachbach Höhe Brücke - S5) und in der Klammstraße (Zattachbach Höhe Hofstatt - S6) installiert. Neben den Messungen für Temperatur, Luftfeuchtigkeit, Windgeschwindigkeit werden auch Niederschlag an fünf Orten und die Wasserstände vom Weizbach und vom Zattachbach automatisiert gemessen.

Wetterstationen - letzte Synchronisation

Station	Letzte Synchronisation
S1 Florianigasse:	20.09.2016 06:00:00 (Update stündlich)
S2 Kreuzwirt/Weizbach:	20.09.2016 06:30:00 (Update ca. alle 15 Minuten)
S3 Weizklamm/Weizbach:	20.09.2016 06:30:00 (Update ca. alle 15 Minuten)
S4 Europa-Allee/Weizbach:	20.09.2016 06:30:00 (Update ca. alle 15 Minuten)
S5 Waldgasse/Zattachbach:	20.09.2016 06:30:00 (Update ca. alle 15 Minuten)
S6 Klammstraße/Zattachbach:	20.09.2016 06:30:00 (Update ca. alle 15 Minuten)

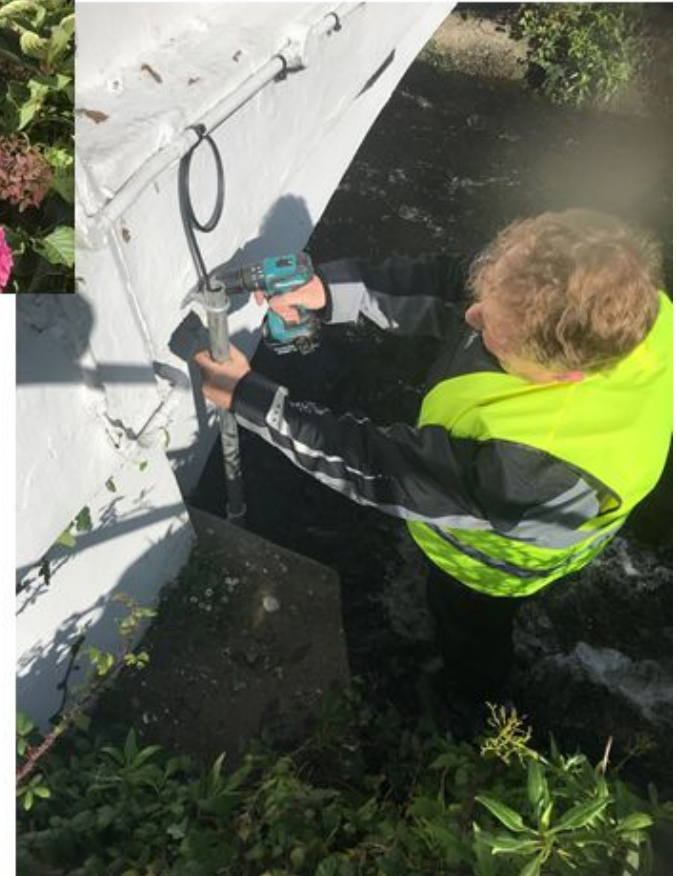
Wetterdaten - Wetterstation Florianigasse

Messung	aktuelle Messung	min 24h	max 24h
S1 Temperatur:	12.96 °C	12.96 °C	24.22 °C
S1 Luftfeuchtigkeit:	79.08 %	37.74 %	92.34 %
S1 Windgeschwindigkeit (Windrichtung):	0.36 km/h (100°)	0 km/h	6.84 km/h
S1 Windspitzen/-böen:	4.68 km/h	1.44 km/h	26.64 km/h

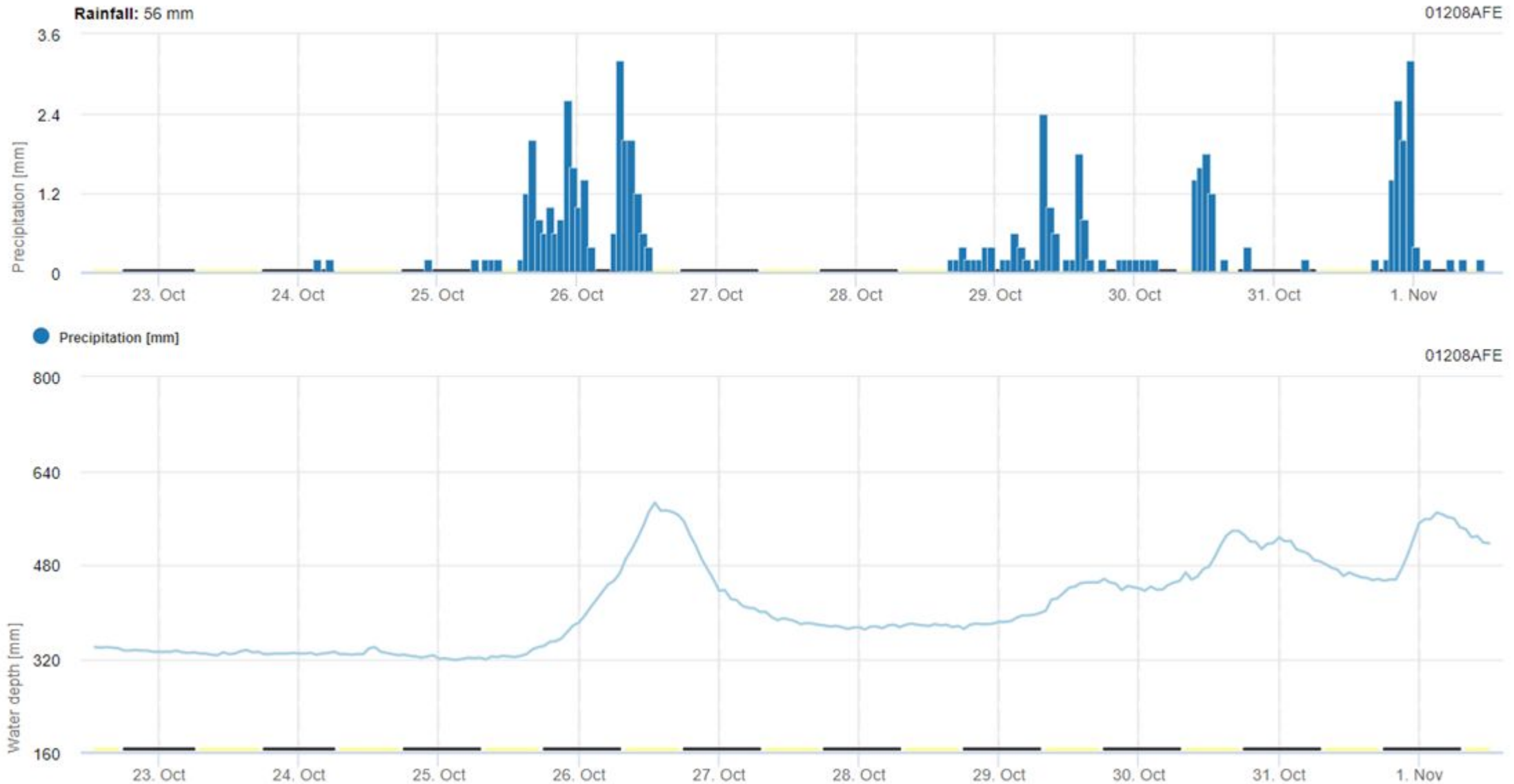
Temperatur S1
 26 C

<http://www.stadtfeuerwehr-weiz.at/service-und-sicherheit/wetterstation/>

Use case: Flood warning in UK

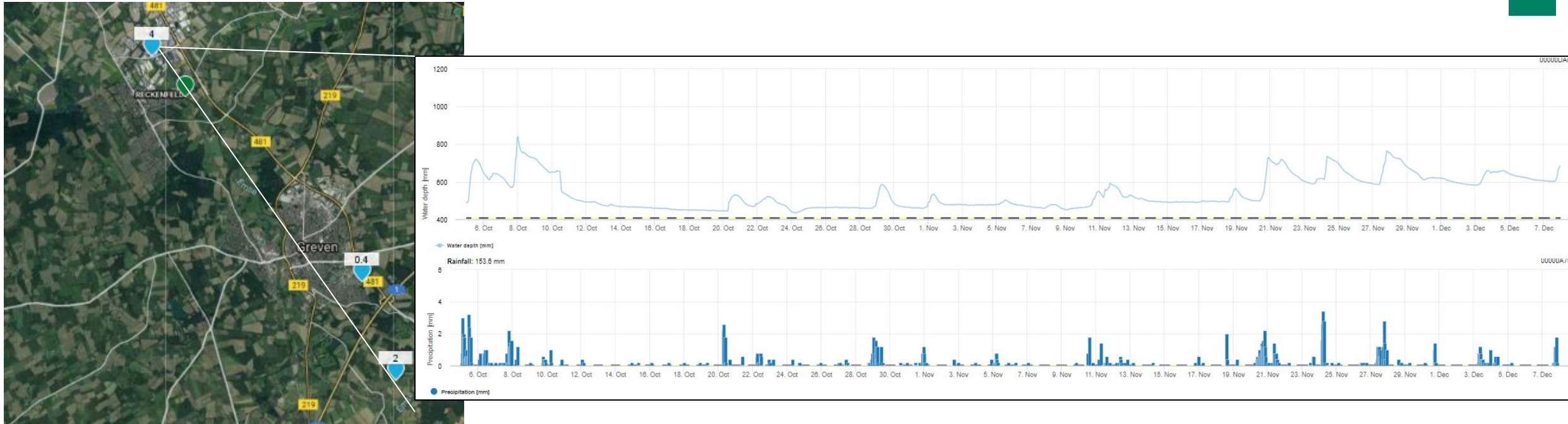


Water level data in Fieldclimate



Use case: Flood warning in Greven (GER)

- Application of water level sensors in a flat area.
- In the station map in Fieldclimate platform you can see the last data of the selected sensor (precipitation in this picture).



Set SMS alert

- Water level live reading is updated every 5 minutes
- Set in Fieldclimate a minimum or maximum threshold
- **SMS sent directly to your mobile phone**

The screenshot displays the 'SMS WARNINGS' configuration page in the FieldClimate web interface. The page is divided into two main sections: 'Phone numbers' and 'Warnings'.

Phone numbers section: This section allows users to add and manage phone numbers for SMS warnings. It includes an 'Add phone number' form with fields for 'Phone number' and 'Name', and an 'ADD' button. Below the form is a 'List of phone numbers' table with columns for 'PHONE NUMBER', 'NAME', and 'ACTIVE'. The table contains three entries, each with a 'REMOVE' button.

PHONE NUMBER	NAME	ACTIVE	
+436647688500	Markus Horwath	YES NO	REMOVE
+4366460931813	Karl Feichter	YES NO	REMOVE
+4366460931432	Christian Lechner	YES NO	REMOVE

Warnings section: This section is for setting up SMS warnings. It includes a text box with instructions on how to format warning thresholds (e.g., using commas for multiple values and negative signs for minimums). Below this is a table with columns for 'CODE', 'CHAIN', 'CHANNEL', 'NAME', 'UNIT', 'WARNING AT MIN', and 'WARNING AT MAX'. The table lists several sensors, with the 'Water depth' entry highlighted by a red box.

CODE	CHAIN	CHANNEL	NAME	UNIT	WARNING AT MIN	WARNING AT MAX
7	1	6	Battery	mV	Thresholds (e.g. 4, -5, 22)	Thresholds (e.g. 4, -5, 22)
30	1	7	Solar Panel	mV	Thresholds (e.g. 4, -5, 22)	Thresholds (e.g. 4, -5, 22)
6	1	11	Precipitation	mm	Thresholds (e.g. 4, -5, 22)	Thresholds (e.g. 4, -5, 22)
25089	1	512	Water depth	mm	Thresholds (e.g. 4, -5, 22)	910.00, 1060.00, 1560.00

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