



Állampolgári alapú talajnedvesség monitoring hálózat – a GROW

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Közösségi tudomány

Közösségi alapon szerveződő adat-szolgáltatás már több tudományterületen működőképes rendszer.

A talajtudomány ezt a csatornát igen korlátozottan használja.

Hiányosság még a civil éberség, melynek elérése érdekében népszerűsítés, tartalomfejlesztés és direkt megkeresések szükségesek.

**Gondoskodj
az éleleléről!**

**Gondozd
a talajt!**

**Gondolkozz
a tudománnyal!**

GROW
OBSERVATORY



**3 EGYSZERŰ LÉPÉSSSEL
TE IS HOZZÁJÁRULHATSZ**

EZÁLTAL

telepíts egy
vagy több általunk
biztosított
talajmegfigyelő szenzort
területedre



folyamatosan **nyomon követheted**
talajod állapotát

egy kiterjedt **talajmegfigyelési
hálózat része lehetsz**, ahol hozzád
hasonló termelők és hazai és európai
kutatóintézetek munkatársai együtt
gyűjtik és értelmezik az adatokat

a globális és lokális előrejelzések
pontosabbá válnak a Te területeden

elérhetővé és értelmezhetővé válnak
jelentős helyi és európai **környezeti
adatbázisok**

a közös adatbázis hozzájárulhat
a résztvevők döntéshozatalához, ezáltal
egy egészségesebb környezetgazdálko-
dáshoz és a **klimaváltozáshoz való
alkalmazkodáshoz**

termékeden feltüntetheted, hogy
**tudatos
talajhasználóként**,
méréseiddel és
megfigyeléseiddel
támogatod a
talajtudományt



okostelefonoddal
rendszeresen
olvasd le
az adatokat
a szenzor(ok)ból



csatlakozz egy
önkéntes közösséghez,
ahol a gyűjtött
információd,
tapasztalataid
megoszthatod
és Te is tanulhatsz
másoktól



Talajtani érzékelés

Fontos talajtulajdonságok házilag mérése a tudatos talajhasználat érdekében.

A Miskolci Egyetem önkéntes kutatókat keres.

Az együttműködés során talajnedvesség mérő szenzorokat helyezünk el önkéntesek területein.

A mért adatok értelmezéséhez, és a közvetlen és távolabbi környezet talajtani és természetföldrajzi adottságainak megismeréséhez rendszeres előadásainkon nyújtunk segítséget.

Első bemutatkozó előadásra

2017. november 7-én 17 óra 30 perckor kerül sor

a Kisgyőri Faluházban.



TERMESZ ÉTELT
KUTASD A TALAJT
BŐVÍTSD A TUDÁST

GROW
OBSERVATORY













GROW Observatory Magyarország

Karesz

Página inicial

Página

Caixa de Entrada

Notificações 2

Estatísticas

Ferramentas de publicação

Definições

Ajuda

GROW Observatory Magyarország

@GROW.Hungary

Página inicial

Publicações

Críticas

Vídeos

Fotos

Sobre

Comunidade

Grupos

Informações e anúncios

Eventos

Promover

Gerir promoções

<



growobservatory

Követem

201 bejegyzés

922 követő

322 követés

GROW Observatory

GROW Food GROW Soil GROW Science.

Join our massive permaculture experiment

<https://knowledge.growobservatory.org/knowledge-base/about-the-experiment/>

www.growobservatory.org

BEJEGYZÉSEK

MEGJELÖLVE



tonjemeyer



Tweetek 1 628 Követve 1 962 Követők 2 180 Kedvelések 2 578

Követés

GROWobservatory

@growobservatory

Join the Great #GROWExperiment 2018. Trail a polyculture & grow great food! hub.growobservatory.org/my-experiments...

Dundee, Scotland

growobservatory.org

Csatlakozott 2016. június

808 Fénykép és videó



Tweetek Tweetek és válaszok Média

GROWobservatory @growobservatory · aug. 30.
"Alliums (including garlic and onions) are great for overwintering, as they can handle winter freezes. They are easy to grow, low maintenance, and do well in most climates."
Introducing winter crops and the edible plant database! medium.com/grow-observato...



2 4

GROWobservatory @growobservatory · aug. 29.
Looking forward to it! #GlobalGreen #EP2018

Zwartbles Ireland @ZwartblesIE
The fun continues 🌱 I'm not getting much reading done of @growobservatory I must up my concentration before

Új vagy a Twitteren?

Regisztrálj, hogy saját testreszabott idővonalad legyen!

Regisztráció

Bécs trendjei

#FCSBSCR

#Wien

#FM15

#Gymnich

1 610 Tweet

Österreich

3 537 Tweet

#iau2018hub

Hayrli Cumalar

41,3 E Tweet

Lo Celso

11,4 E Tweet

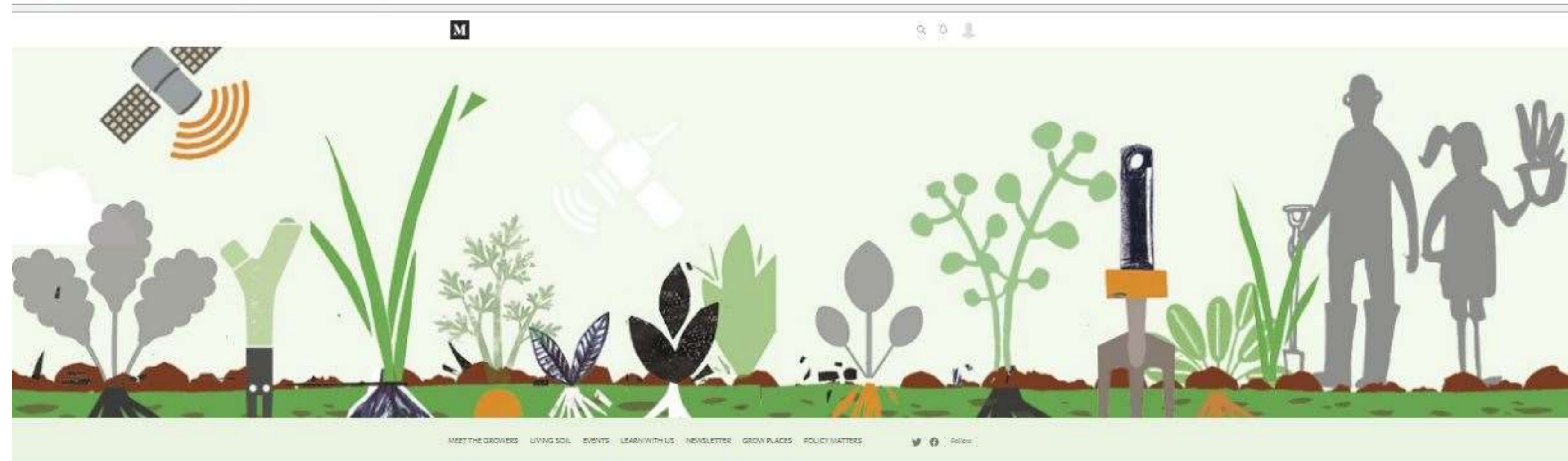
Batman'in Kozluk

2 799 Tweet

Adem Ljajic

12,8 E Tweet

© 2018 Twitter · Rólunk · Súgóközpont
Felhasználási feltételek
Adatvédelmi irányelvek · Cookie-k
Hirdetési információk



ONLINE COURSE

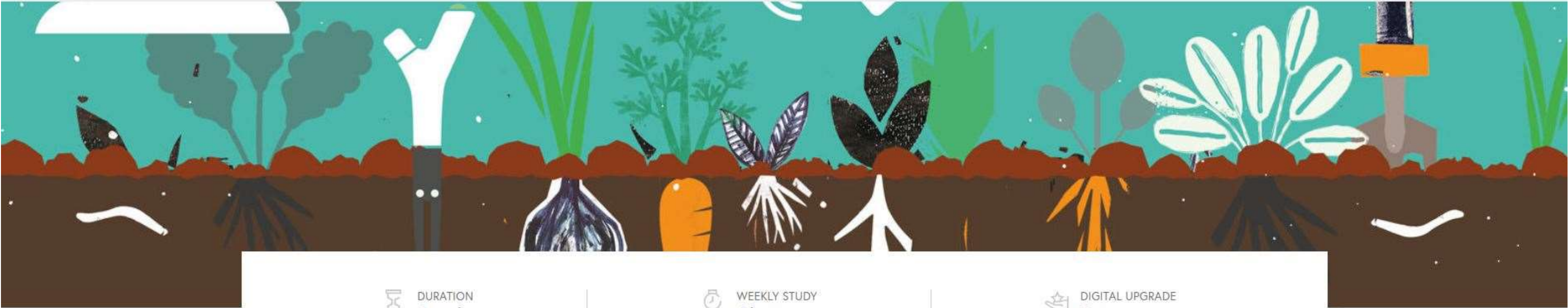
Citizen Science: From Soil to Sky

Learn how to understand your soil and explore global environmental soil issues by becoming a citizen scientist.



Add to Wishlist

Overview Topics Start dates Requirements Educators What's included



DURATION
4 weeks

WEEKLY STUDY
4 hours

DIGITAL UPGRADE
Free

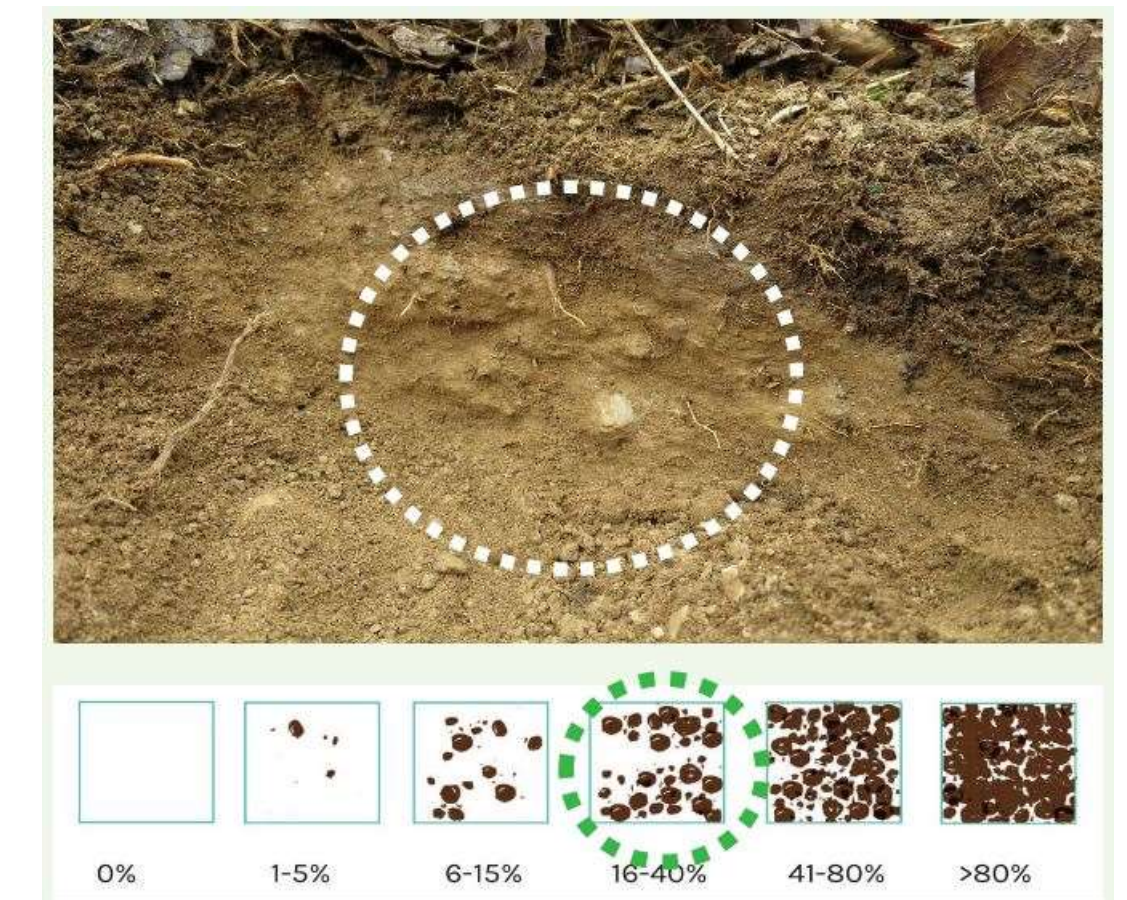
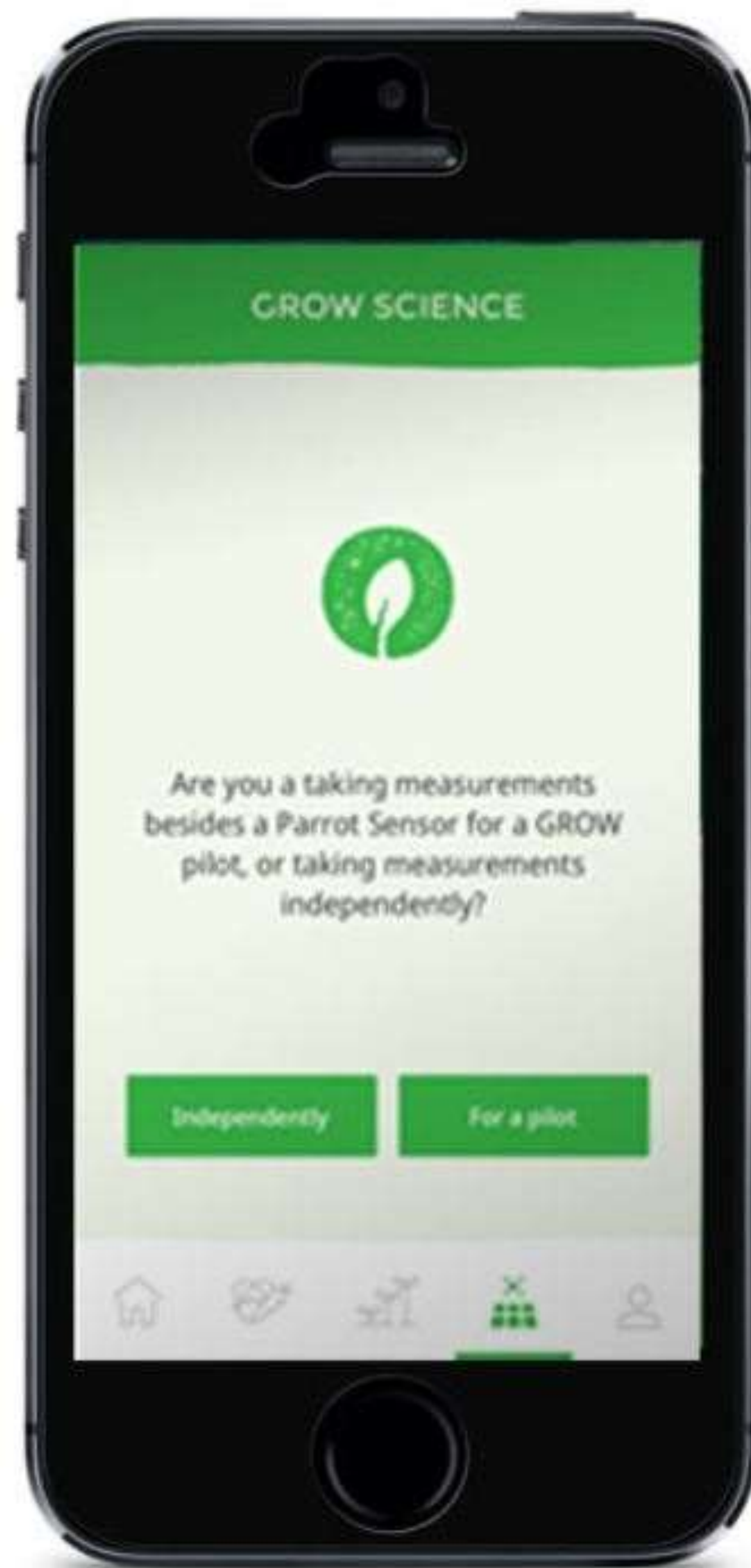
Become a citizen scientist and help



Mit kérünk?



Mit kérünk?

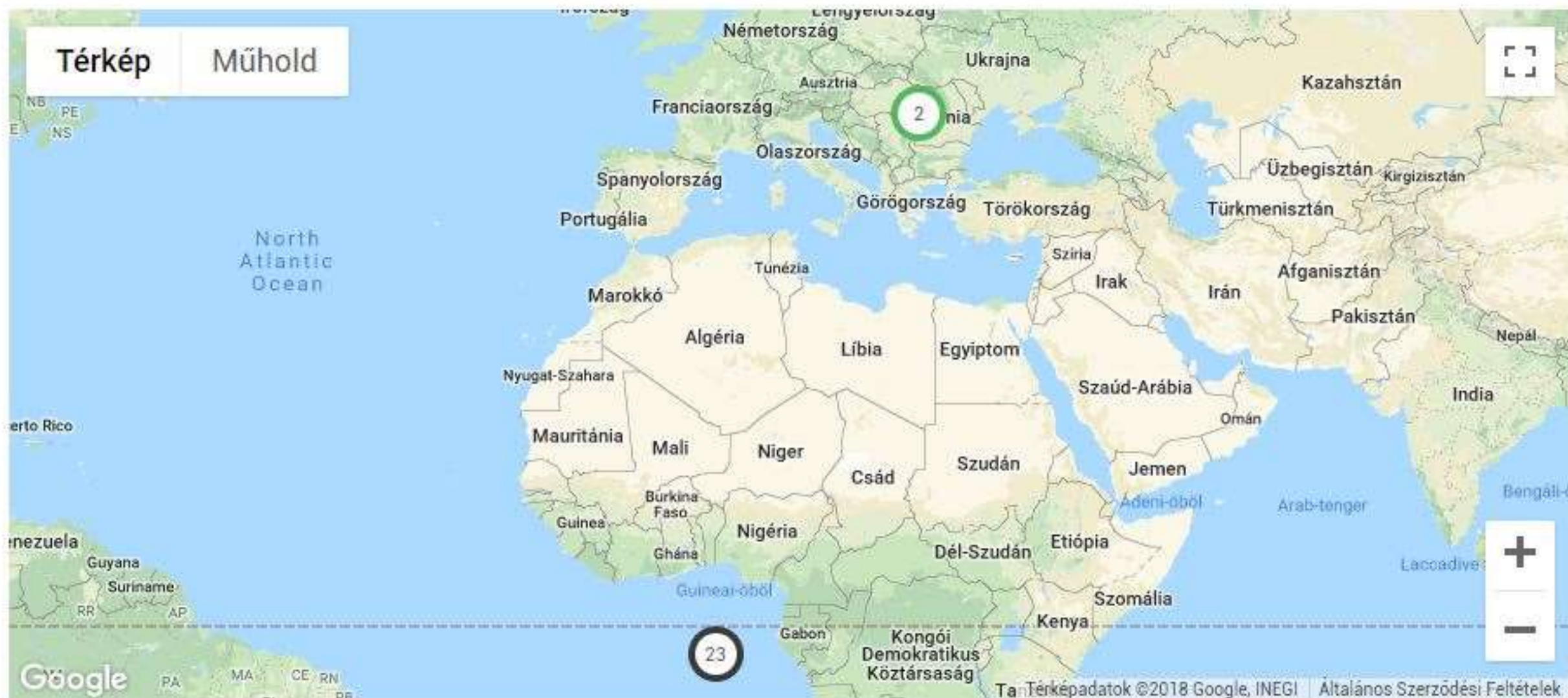




SENSORS

- Kisgyor1 66%
- MIS_KKZ_4939 69%
- MIS_KKZ_4128 32%
- Parakpart Ebb9 100%
- Vezeték Alatt 4dc0 100%
- E75f 100%
- Fenyves D4e1 94%
- MIS_KKZ_Melymulcs_492C 43%
- MIS_KKZ_HOMERO_E9EF 45%
- MIS_KKZ_Hoscan_C1BB 48%

My Sensors



Kisgyor1

PI040298AA3I005365

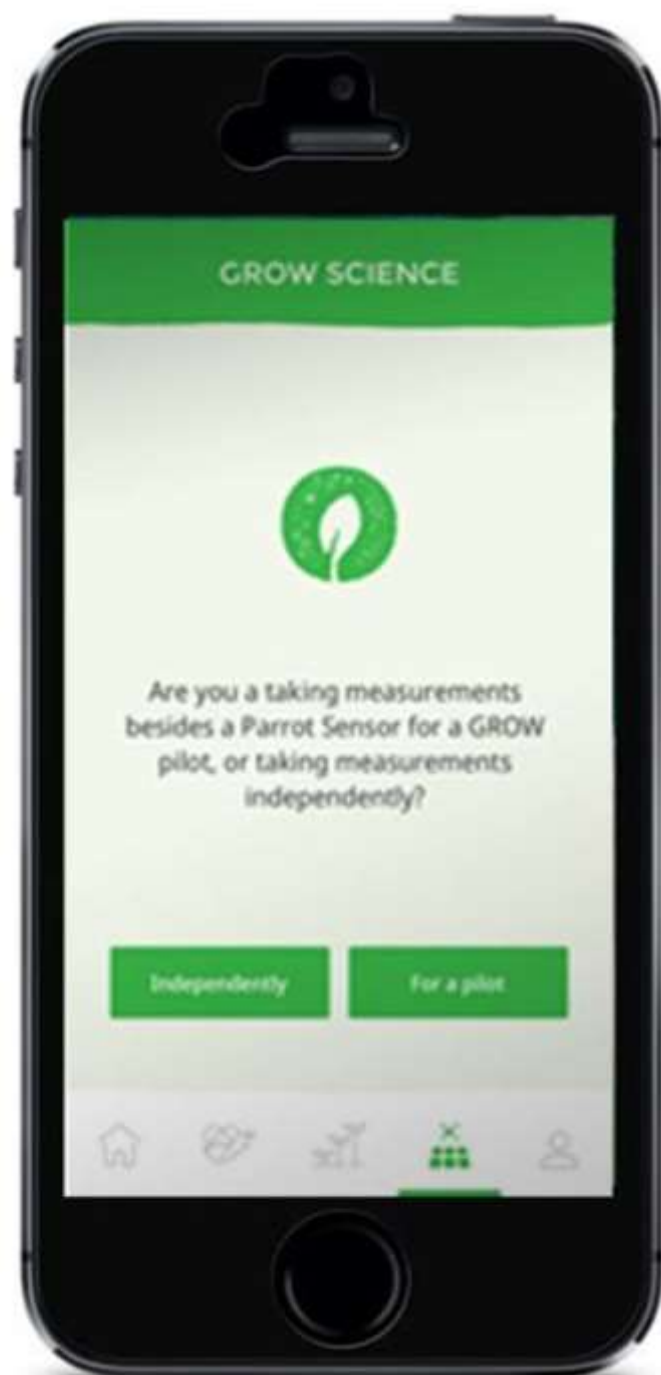
0, 0 [Edit](#)

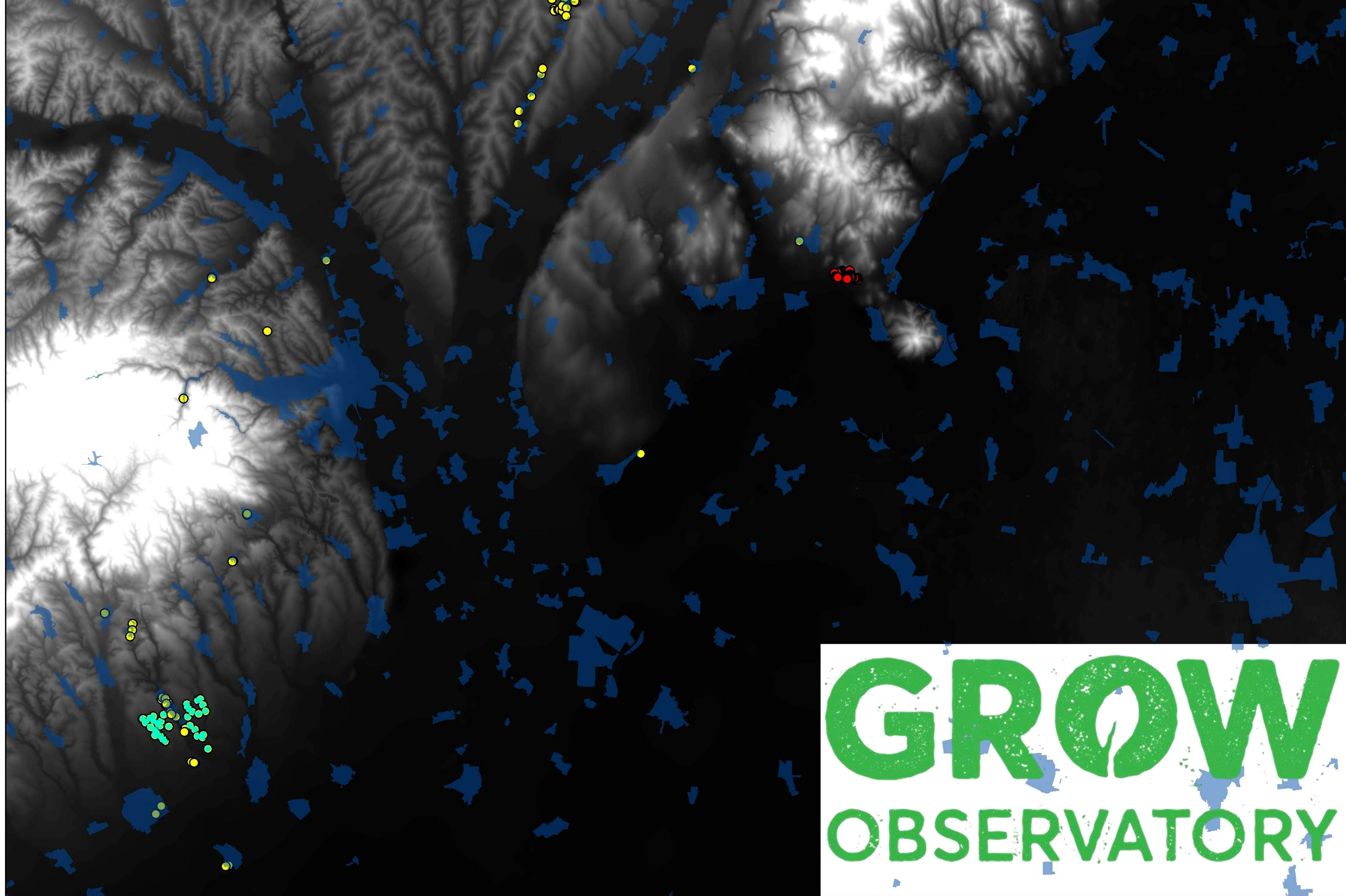
Sunlight: 0.1 Lux

Temperature: -0.78°C

Moisture: 50.32%

Last Updated: 17:39:43 2017-12-04





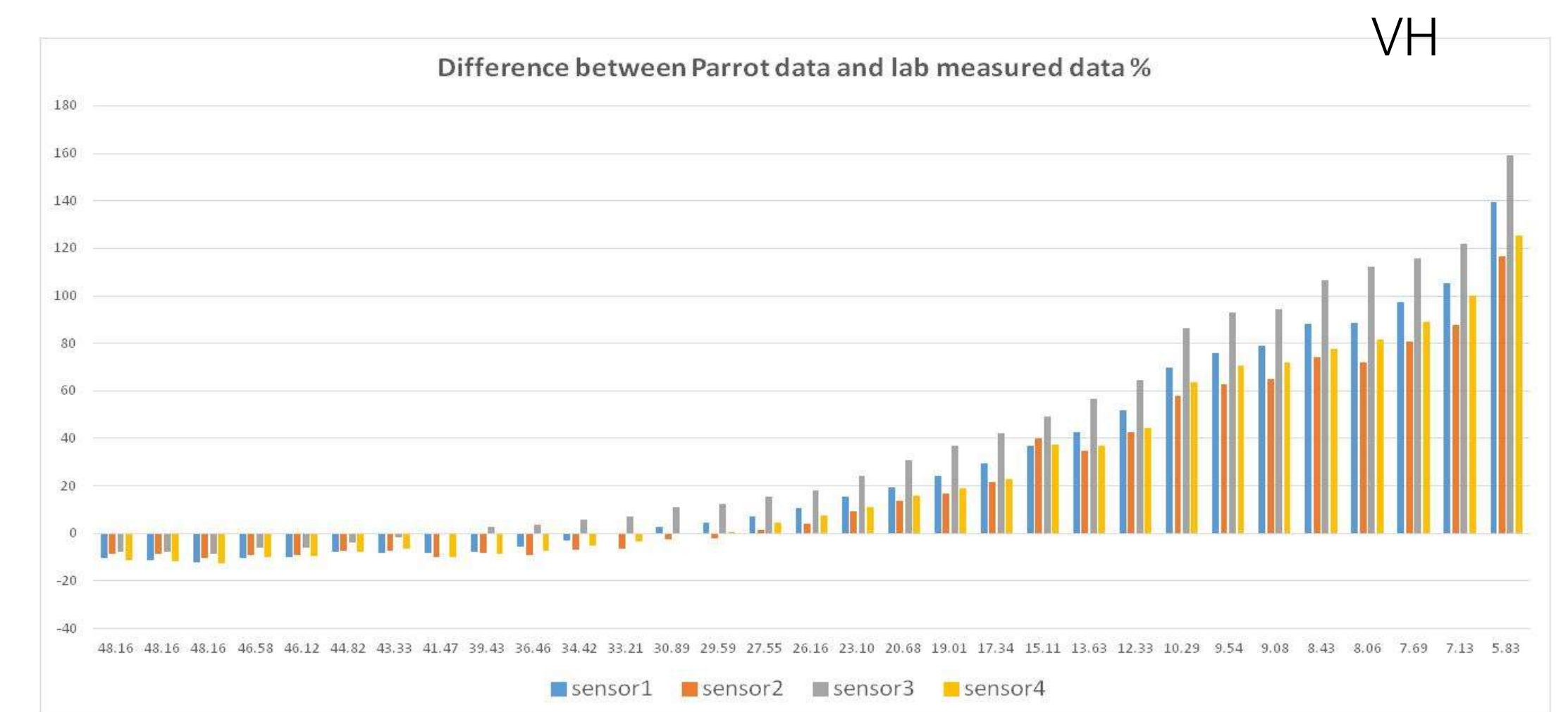
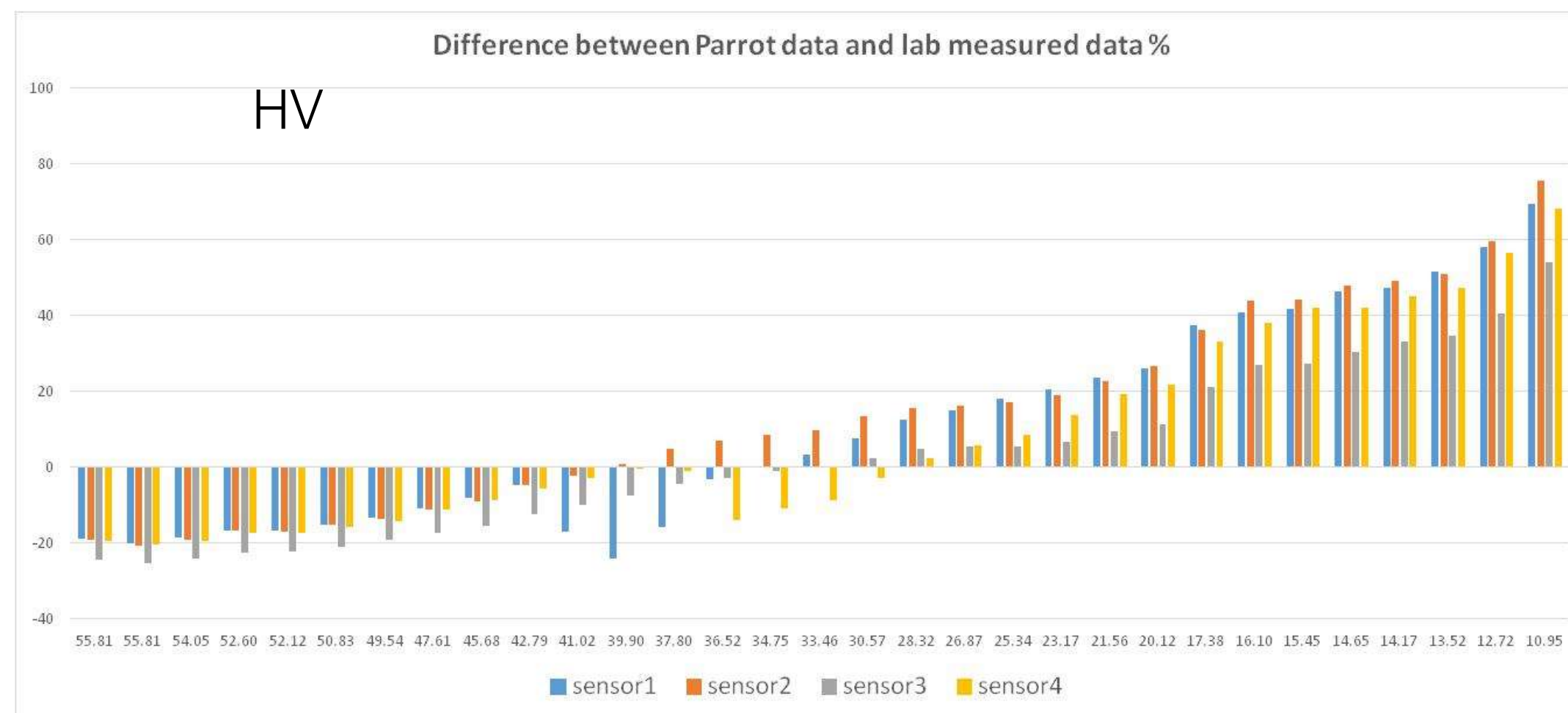
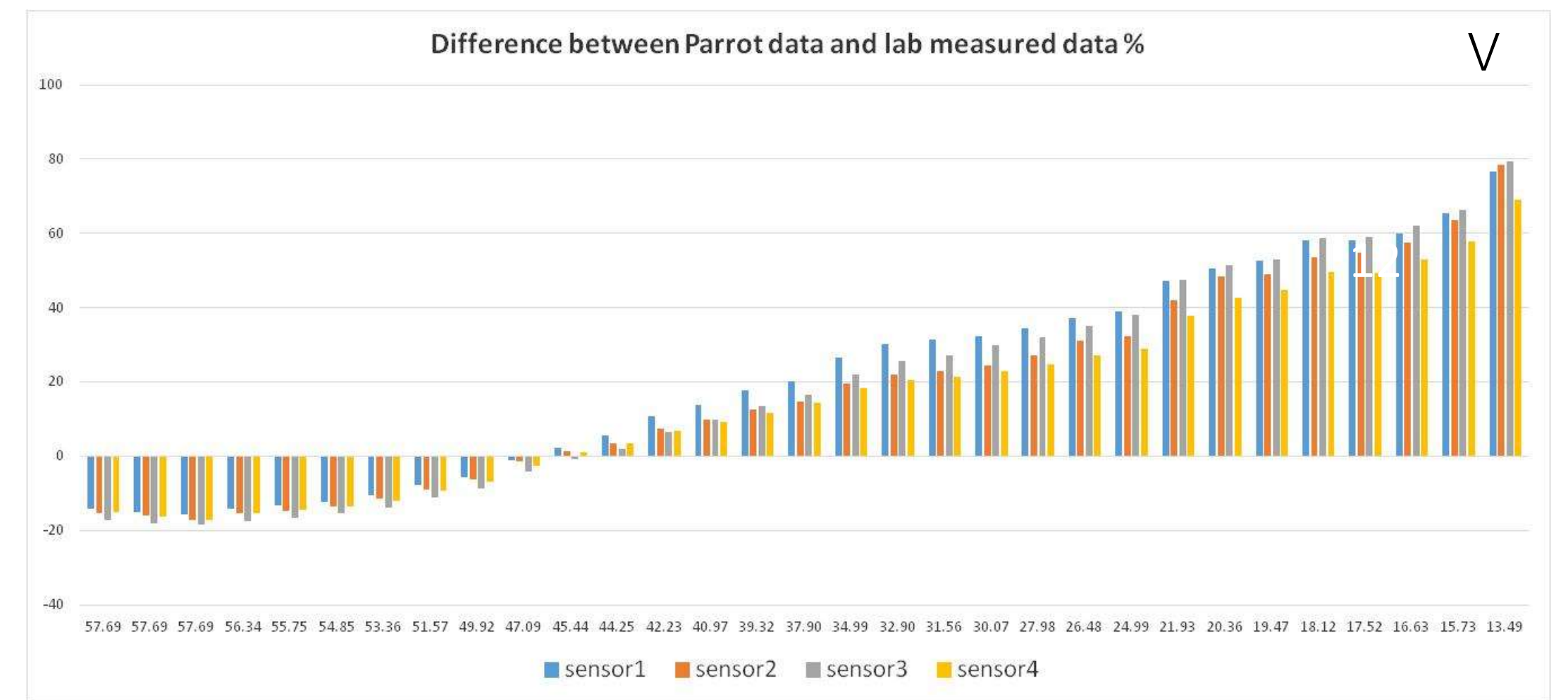
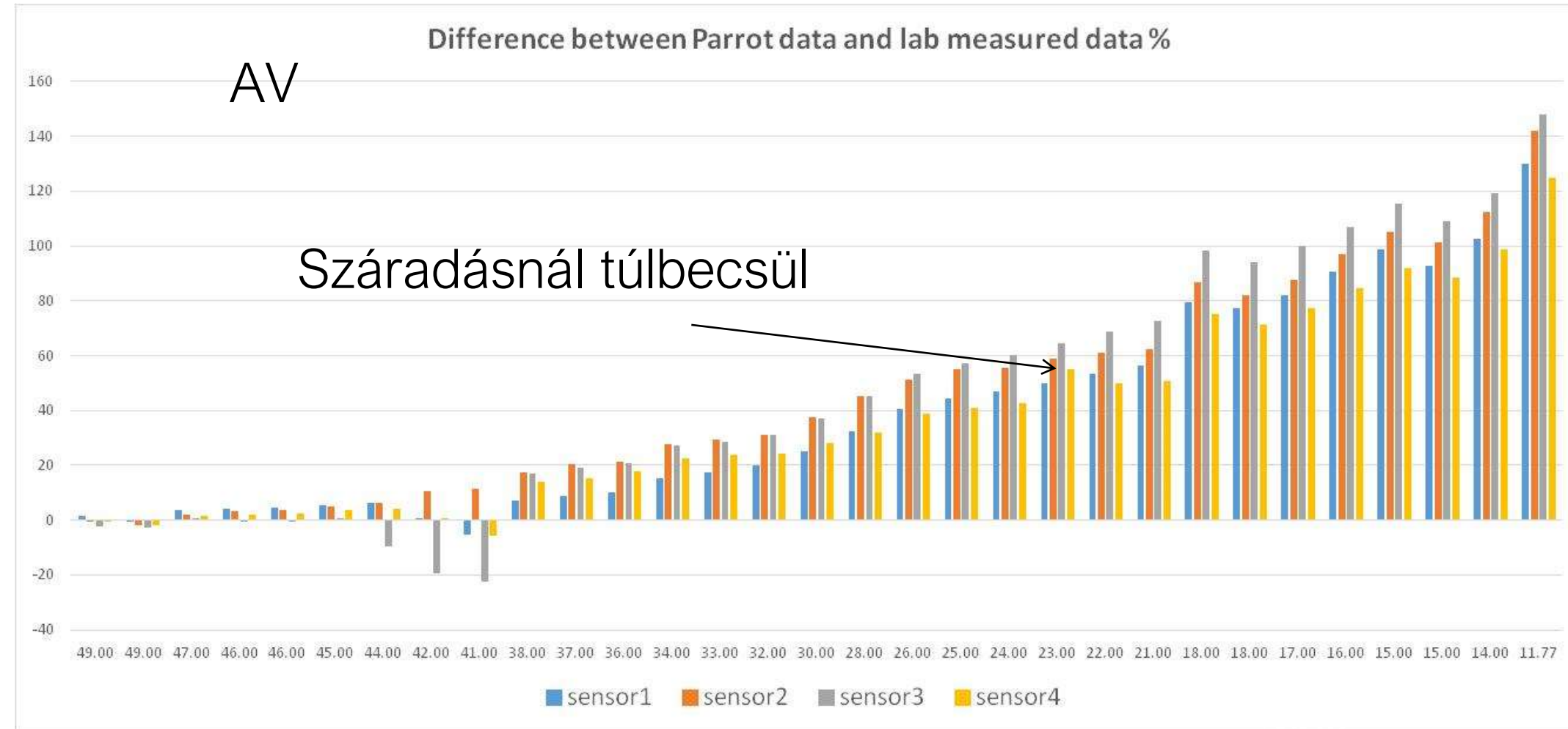








Mérési pontosság (szenzor adat – labor mérés)

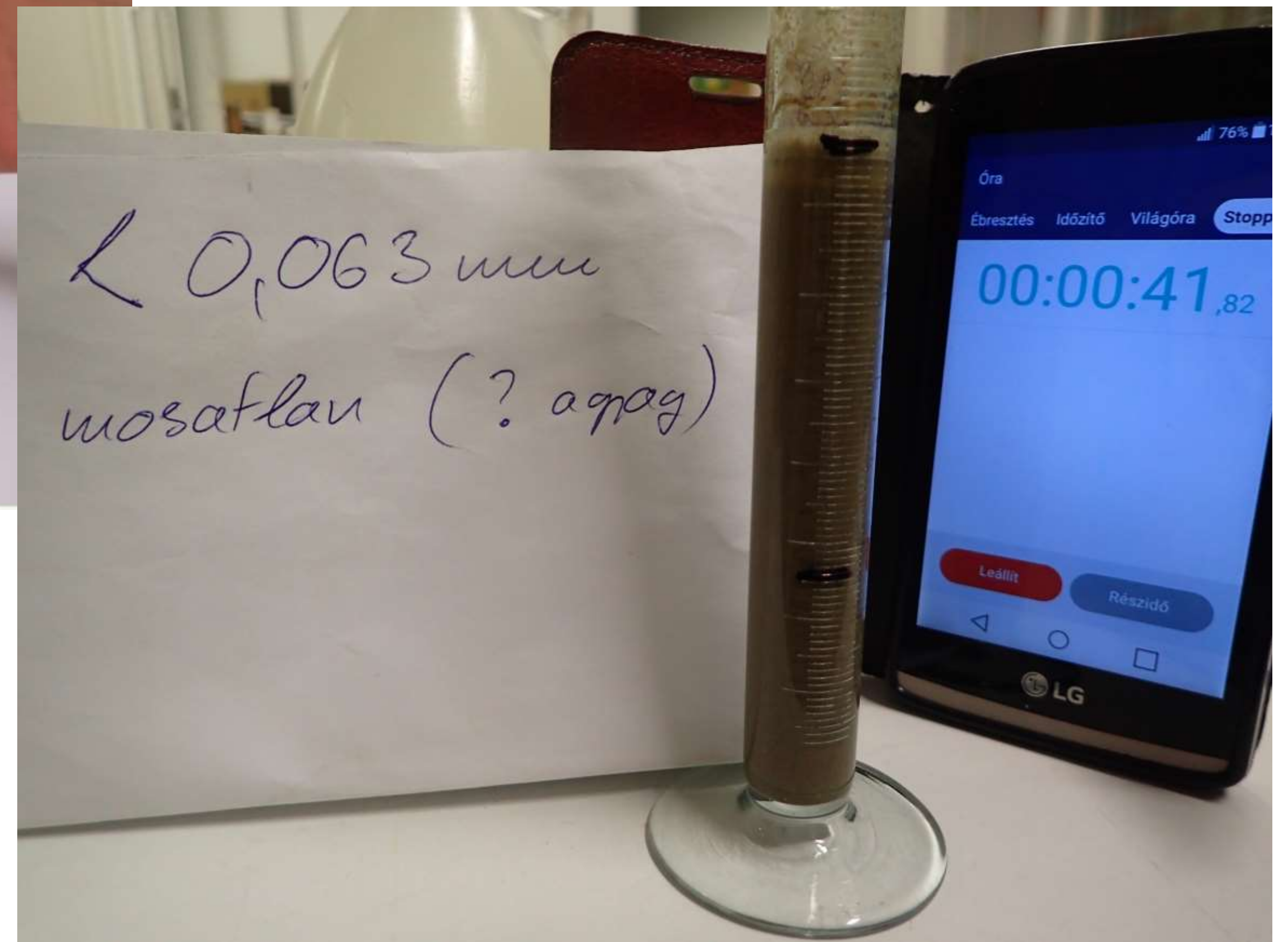


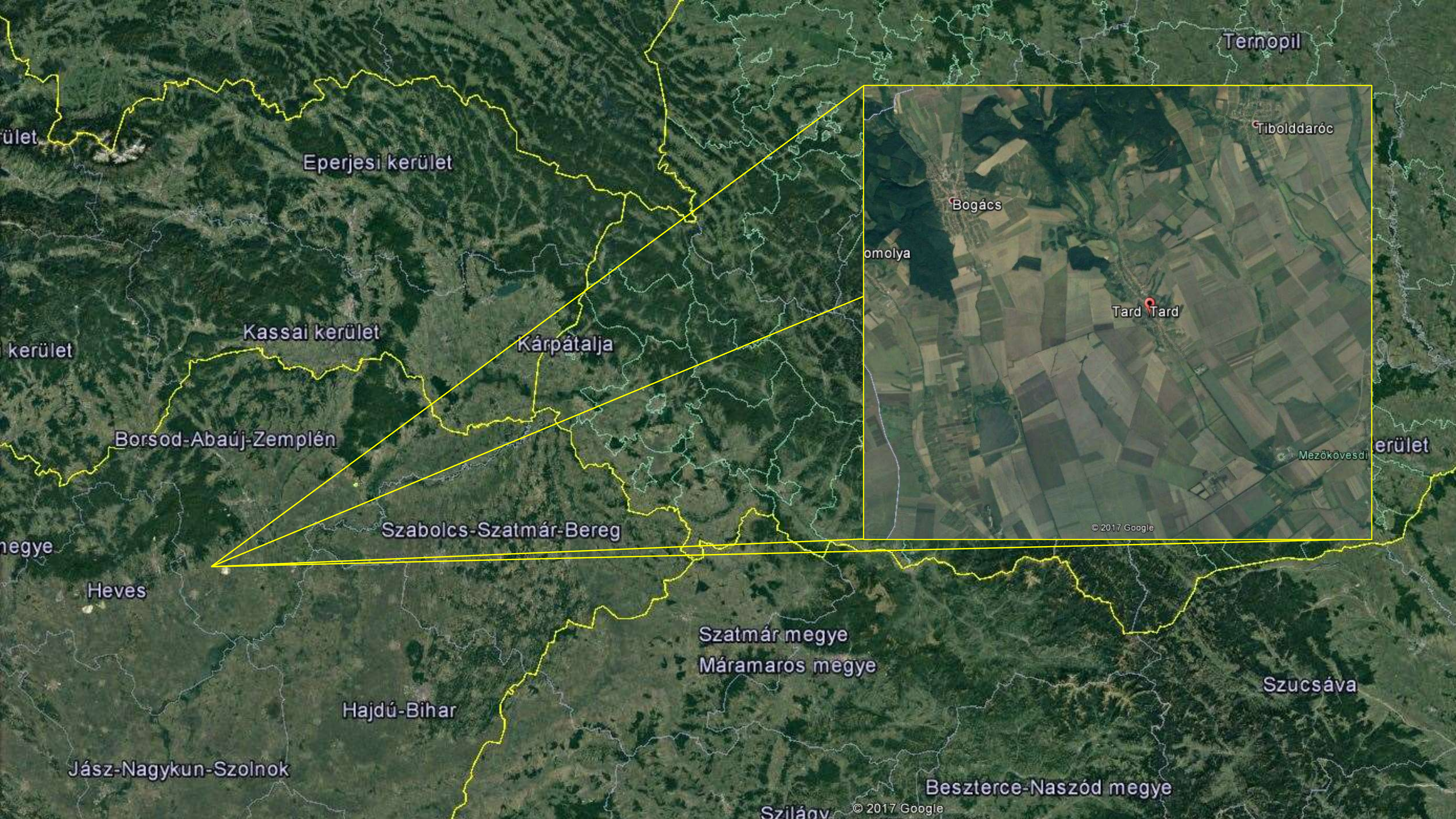
- The Parrot measurements have severe distortion for the dry soil moisture conditions (<20%), can almost double the real value.
- In the most common range (20 to 40%) the estimation differences are less than 20-25%.



Szitált, ismert frakciók

140 minta – K_A
 20 minta – részletes mech.





Ternopil

Tibolddaróc

Bogács

omolya

Tard Tard

Mezőkövesd

erület

© 2017 Google

Eperjesi kerület

Kassai kerület

Kárpátalja

Borsod-Abaúj-Zemplén

Szabolcs-Szatmár-Bereg

Heves

Szatmár megye

Máramaros megye

Szucsáva

Hajdú-Bihar

Jász-Nagykun-Szolnok

Beszterce-Naszód megye

Szilánv

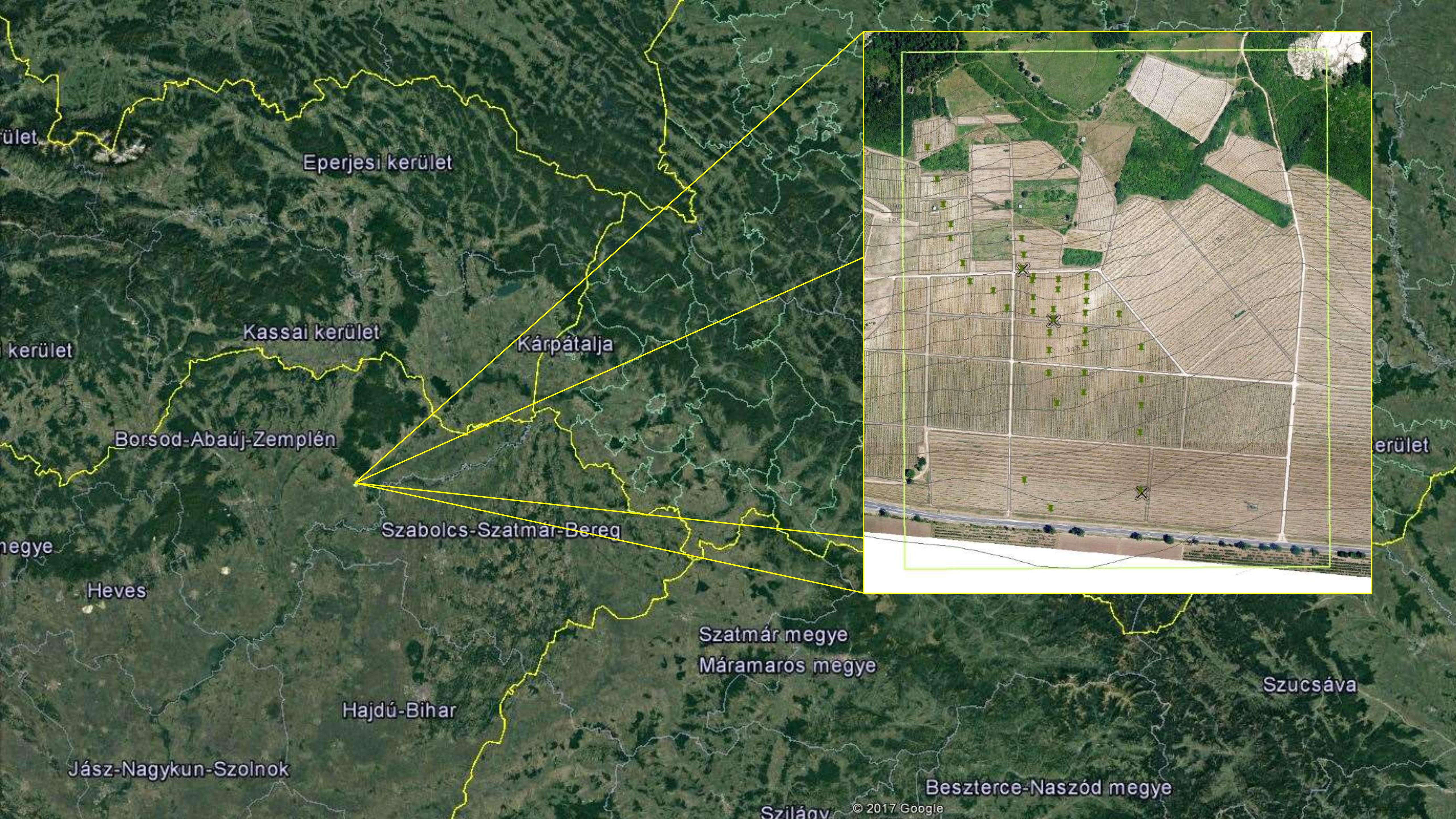
© 2017 Google

Smallholders are involved
and engaged,
MOOC1 will be running

Intensive agricultural
cooperative provides area
for complete thematic
coverage

This site is to test both
engagement procedure
and climate science data
support





ület

Eperjesi kerület

kerület

Kassai kerület

Kárpátalja

Borsod-Abaúj-Zemplén

megye

Heves

Szabolcs-Szatmár-Bereg

Szatmár megye

Máramaros megye

Hajdú-Bihar

Jász-Nagykun-Szolnok

Beszterce-Naszód megye

Szilánv

© 2017 Google

Szucsáva

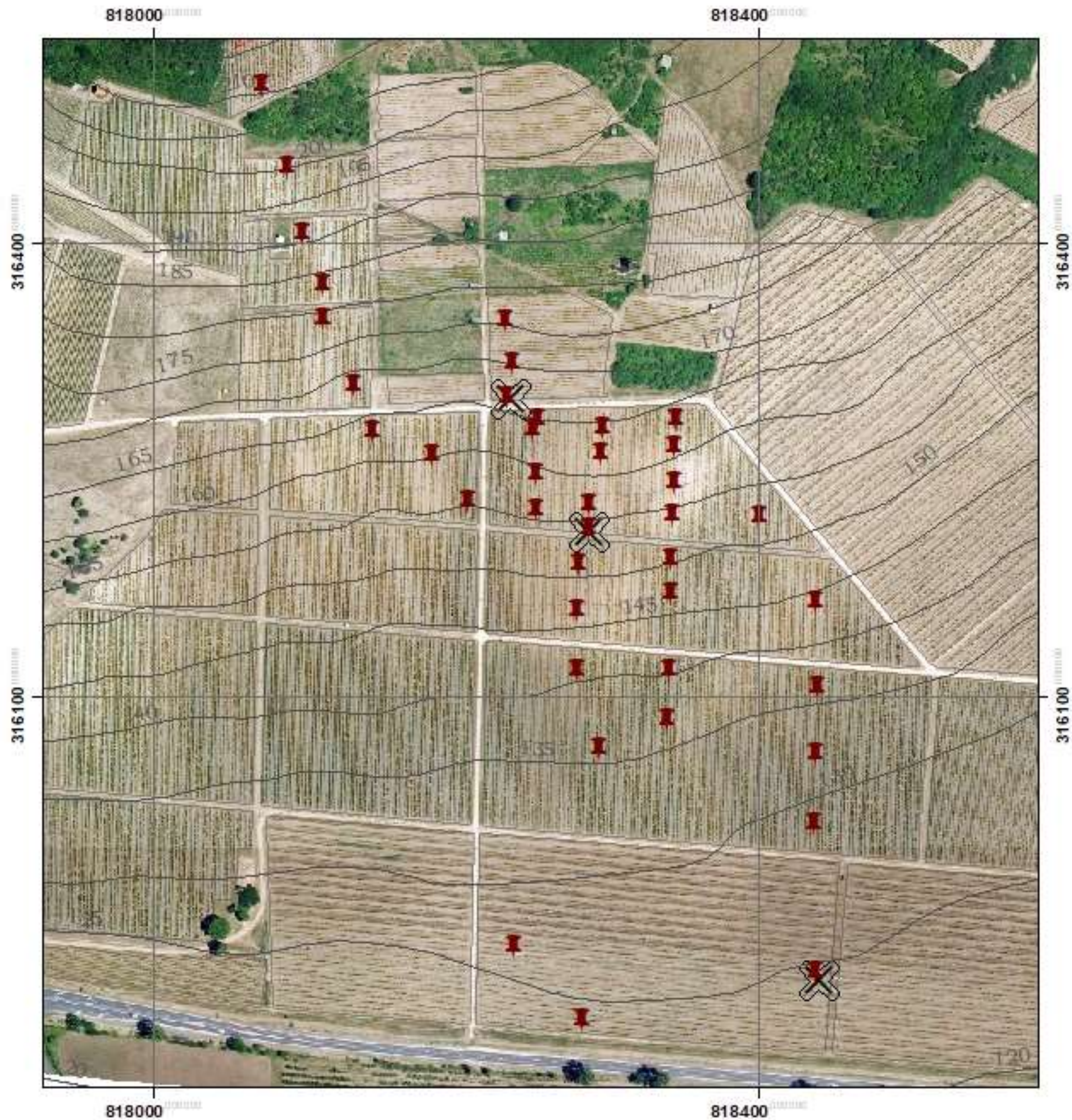
erület

This site is for testing the technology, data collection and processing,
Sentinel validation, protocol test



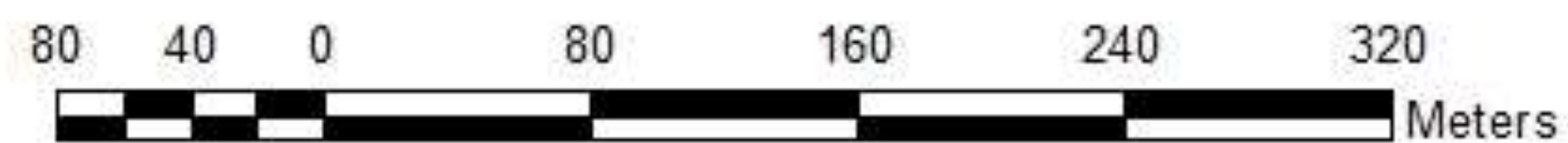


40 spots
2 depths:
• 0-10 cm
• 10-20 cm



GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

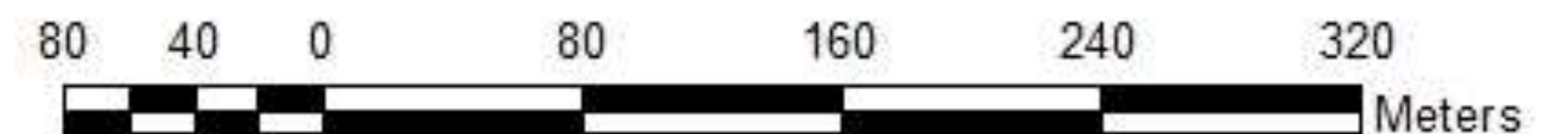
-  GROW sensor location
-  Contour lines
-  Weather & soil moisture stations

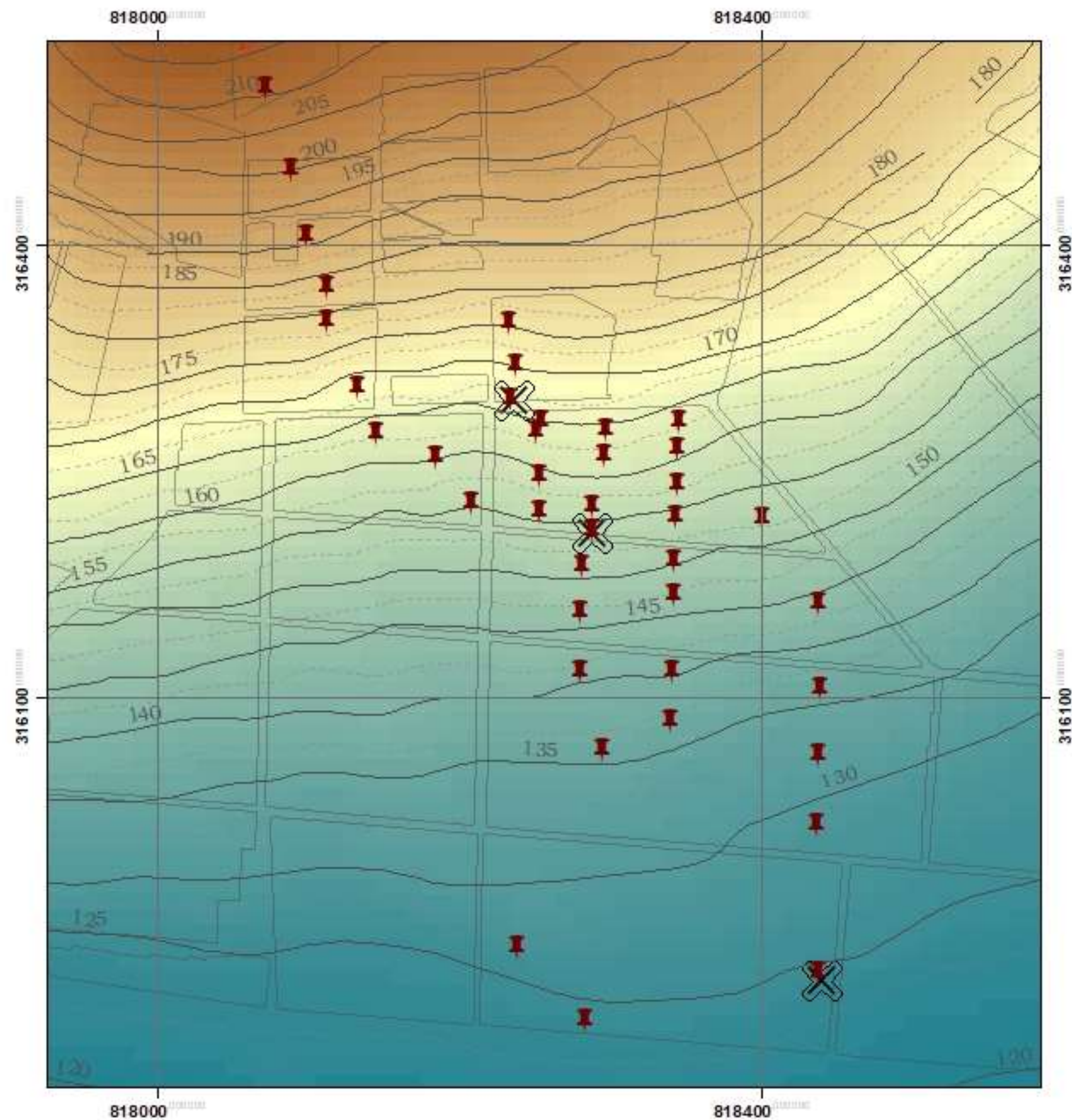




GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

-  GROW sensor location
-  Weather & soil moisture stations
-  PLOTS
-  CORDON & SPACING



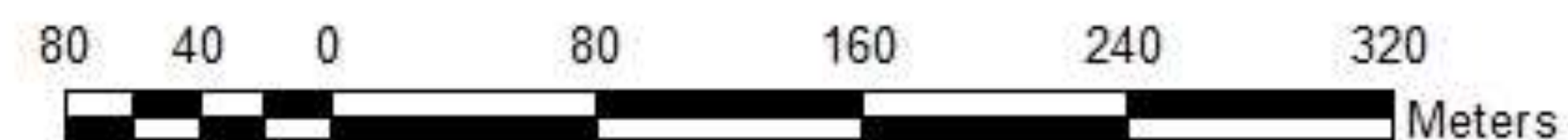


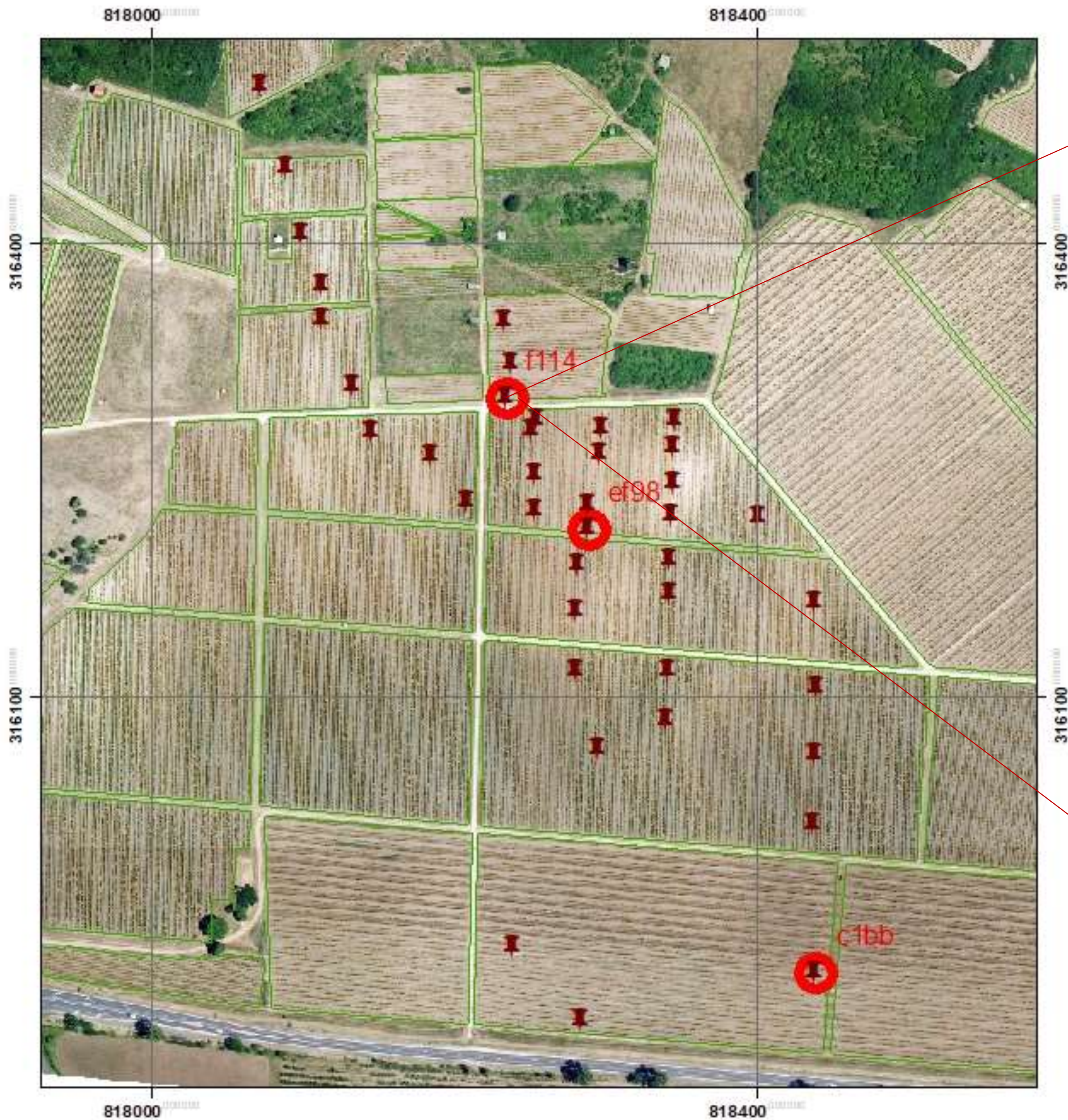
GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

-  GROW sensor location
-  Contour lines
-  Weather & soil moisture stations

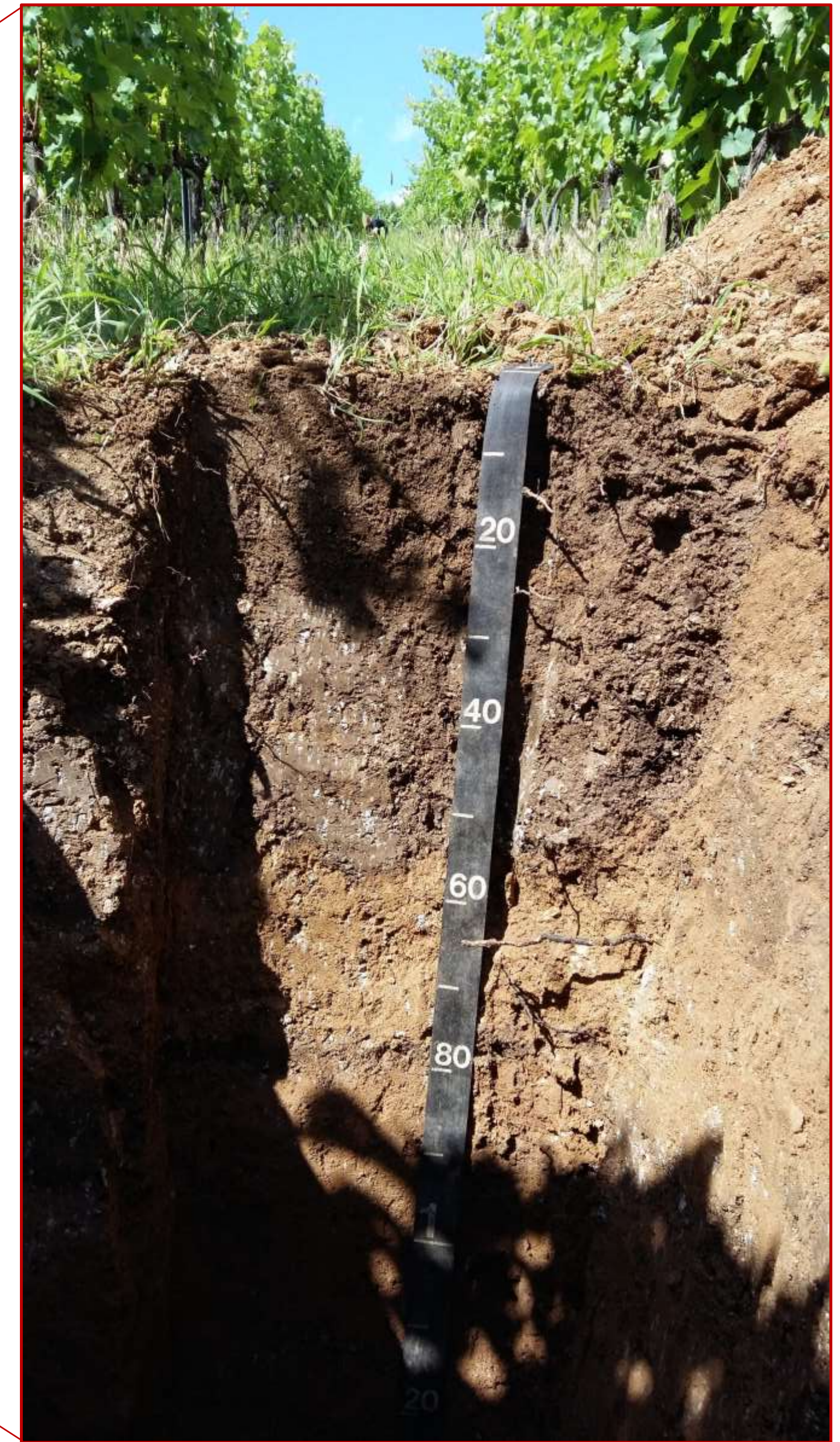
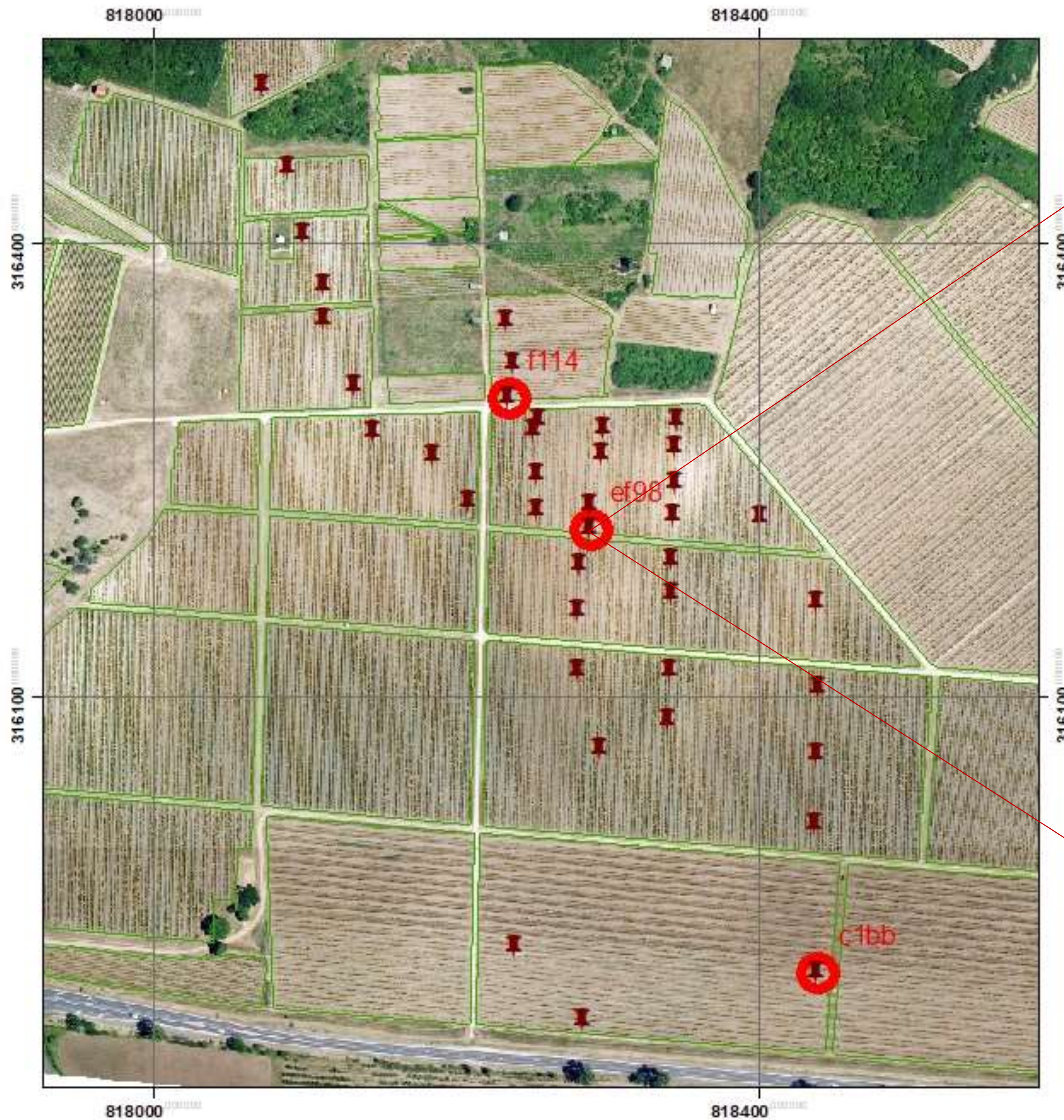
ELEVATION

Value

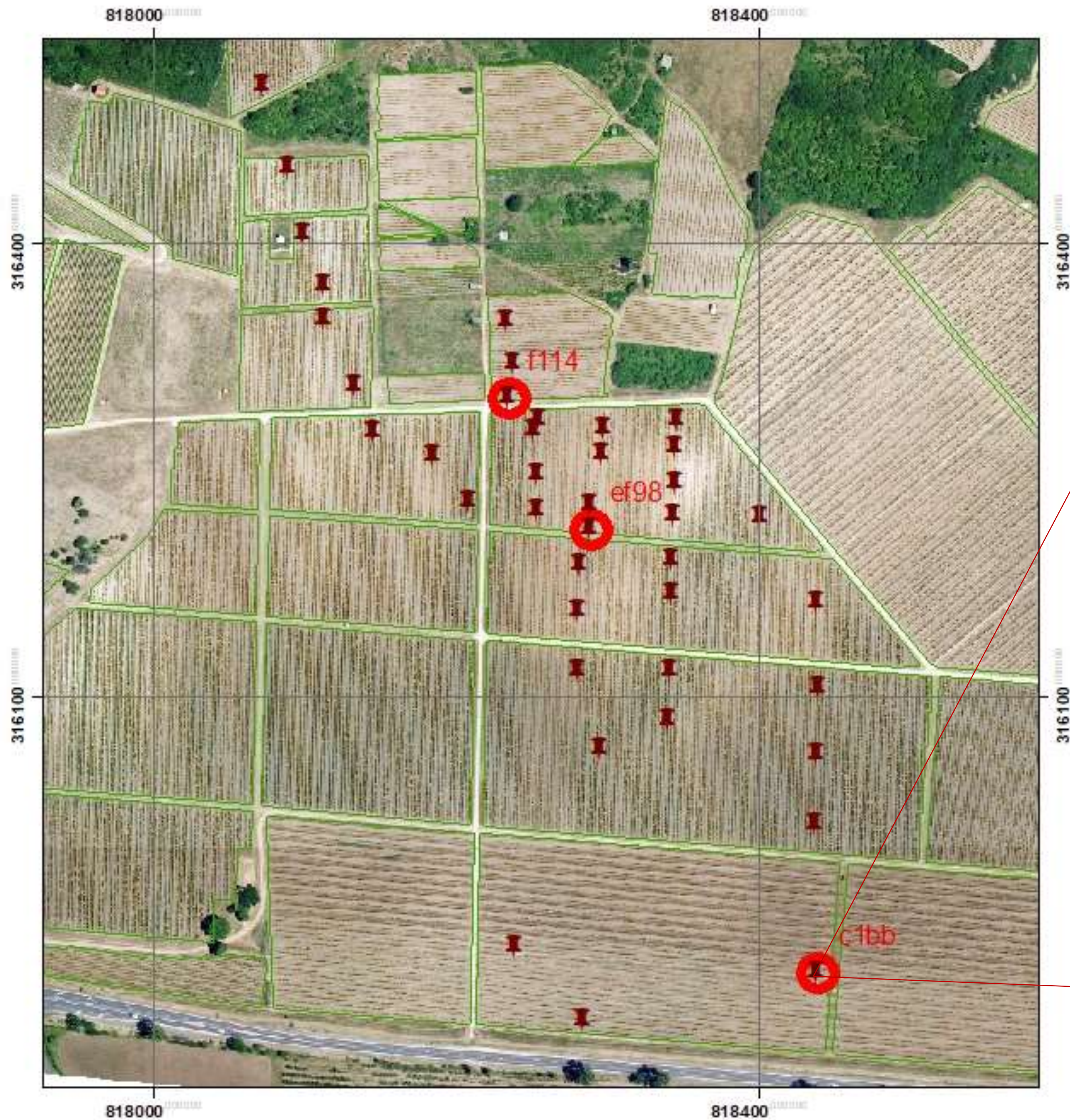




Bathycalcic LUVISOL
(Pantoloamic, Aric, Colluvic, Cutanic, Humic, Rapt)



Epicalcic Geoabruptic LUVISOL
(Loamic, Aric, Colluvic, Cutanic, Hypereutric, Hum)

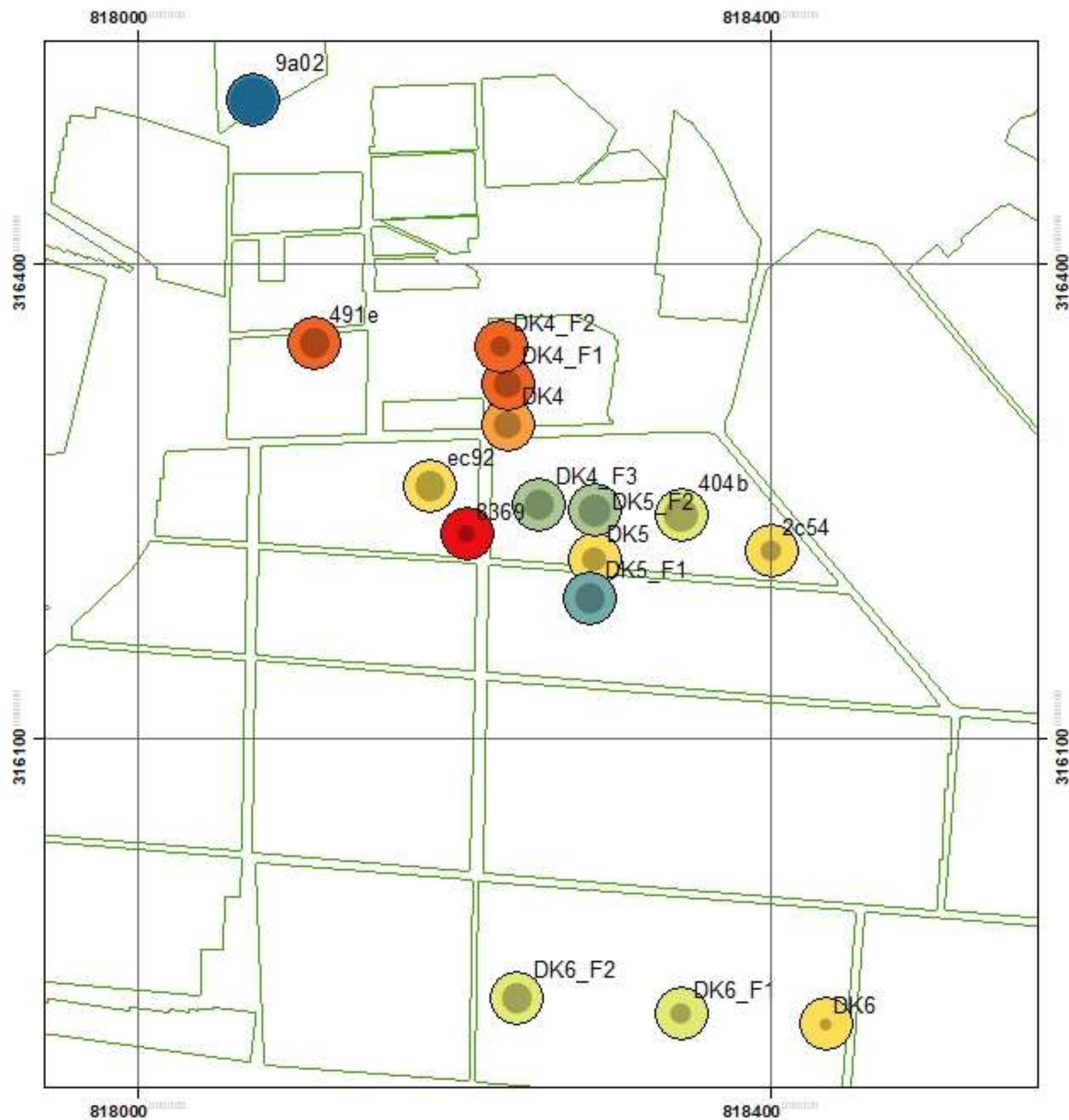


Calcaric Vermic Luvic Chernic PHAEOZEM
(Loamic, Aric, Colluvic, Pachic)



SAMPLE ID	SOIL TEXTURE	Clay [v/v %]	ROCK FRAGMENTS [%]
9a02	S	5	70
491e	C	50	30
ec92	SC	40	30
8369	C	60	10
404b	CL	35	40
2c54	CL	40	15
DK5	SC	40	20
DK6	CL	40	5
DK4	SC	45	25
DK6_F1	CL	35	15
DK6_F2	CL	35	30
DK5_F1	L	15	30
DK5_F2	CL	30	35
DK4_F1	SC	50	25
DK4_F2	SC	50	15
DK4_F3	CL	30	30

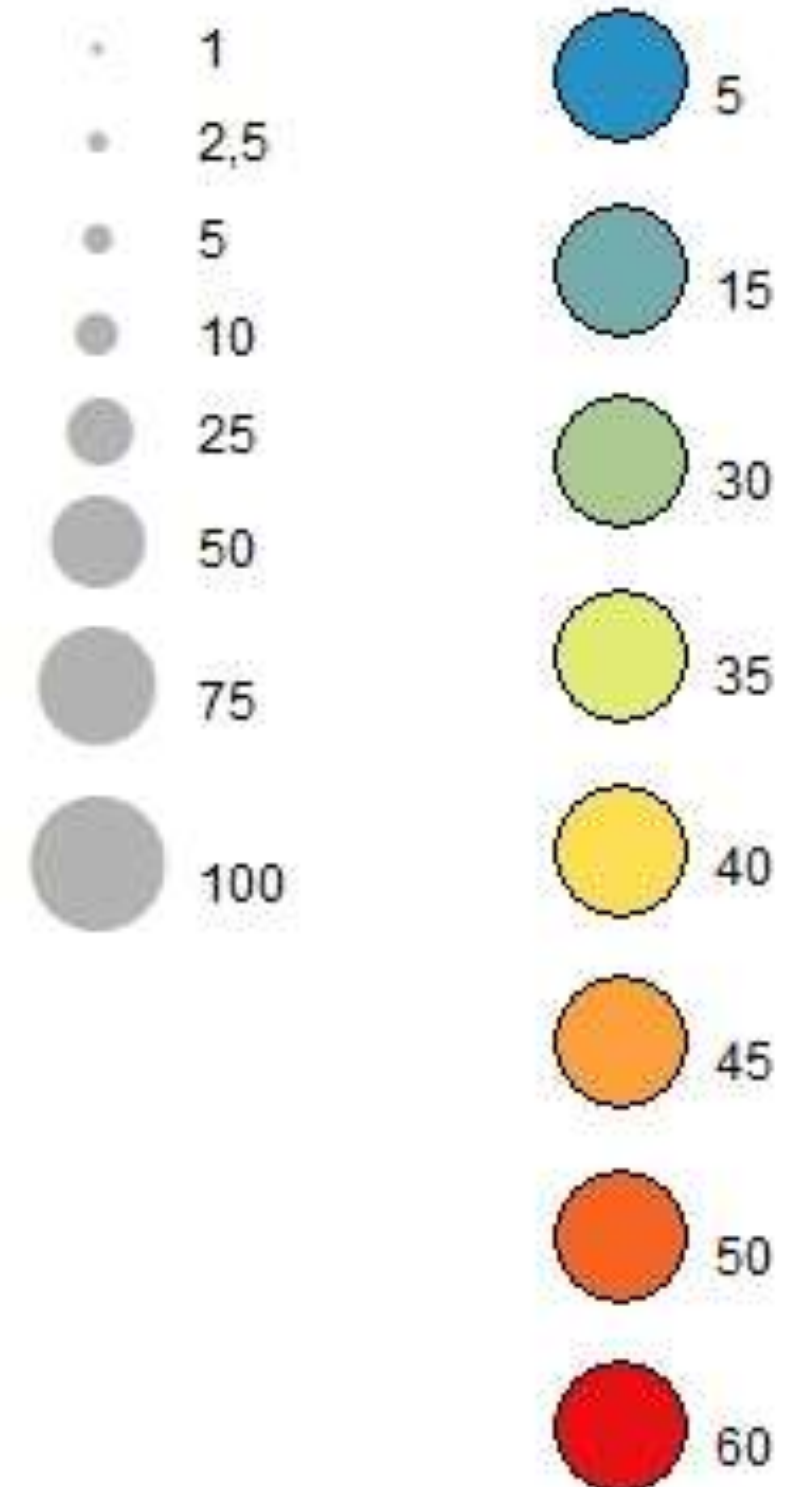


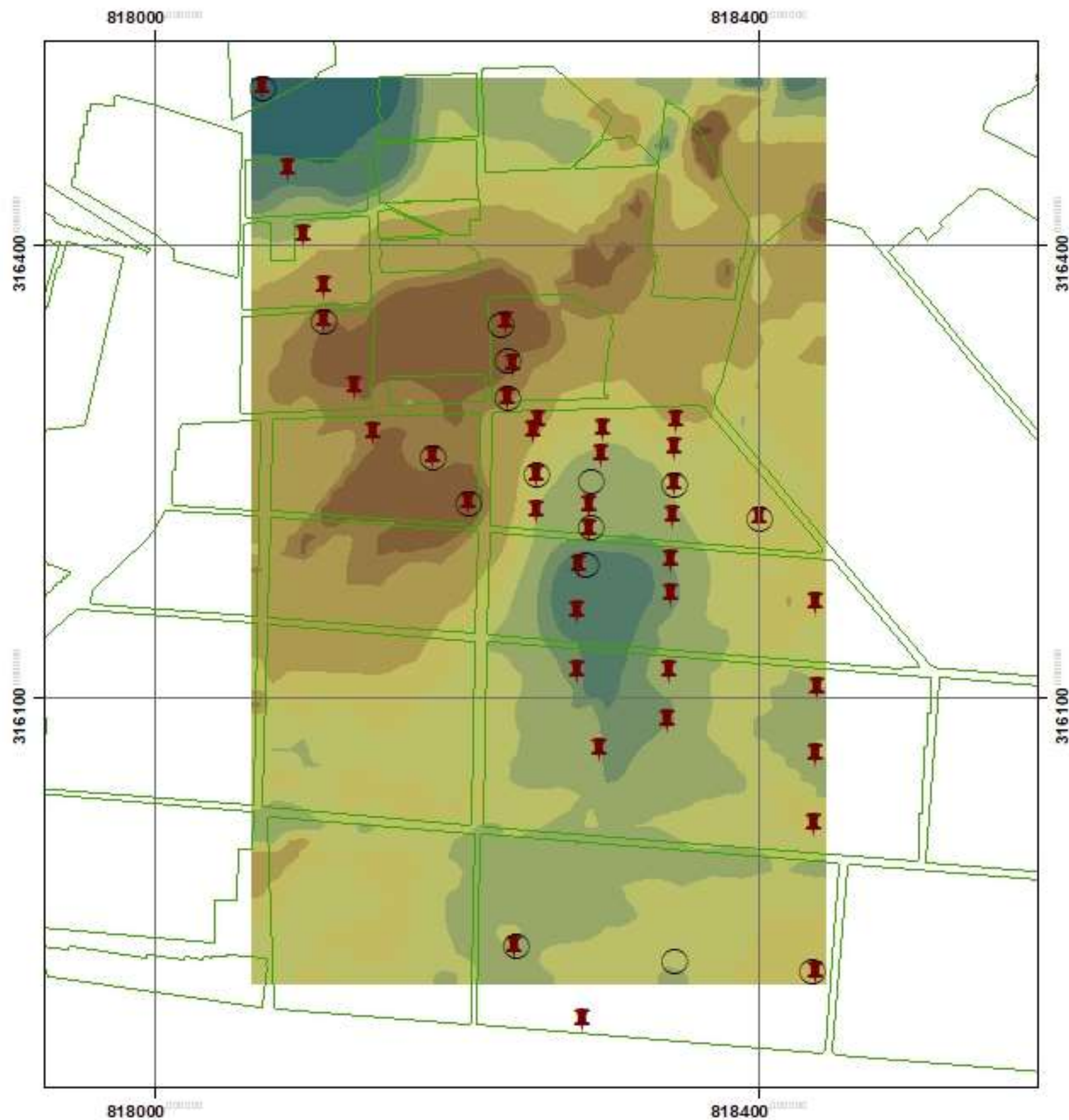


GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

Rock fragments Clay %

ROCK_FRAG [%]





GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

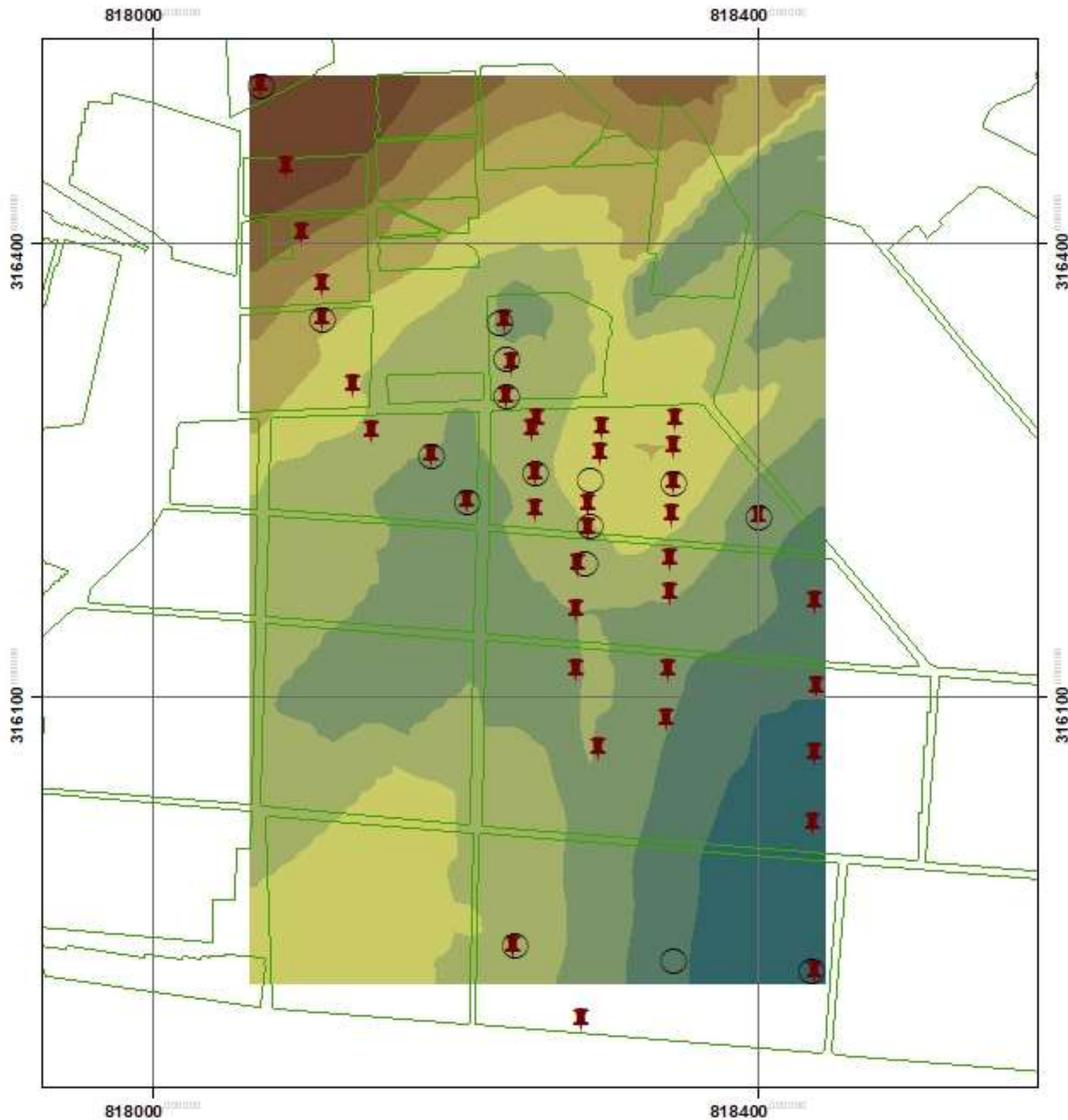
- SOIL DATA
- 📌 GROW sensor location

□ PLOTS

Estimated clay content [%]

- 12,2 - 22,9
- 23 - 28,8
- 28,9 - 30,9
- 31 - 34,5
- 34,6 - 36,8
- 36,9 - 39,4
- 39,5 - 44,7
- 44,8 - 46
- 46,1 - 51,4
- 51,5 - 54





GROW sensor test site - NE Hungary, Mezőzombor, Disznókő

○ SOIL DATA

📌 GROW sensor location

□ PLOTS

Estimated percentage of rock fragment [%]

7,2 - 14,5

14,6 - 19,2

19,3 - 23,8

23,9 - 27,1

27,2 - 31,3

31,4 - 37,3

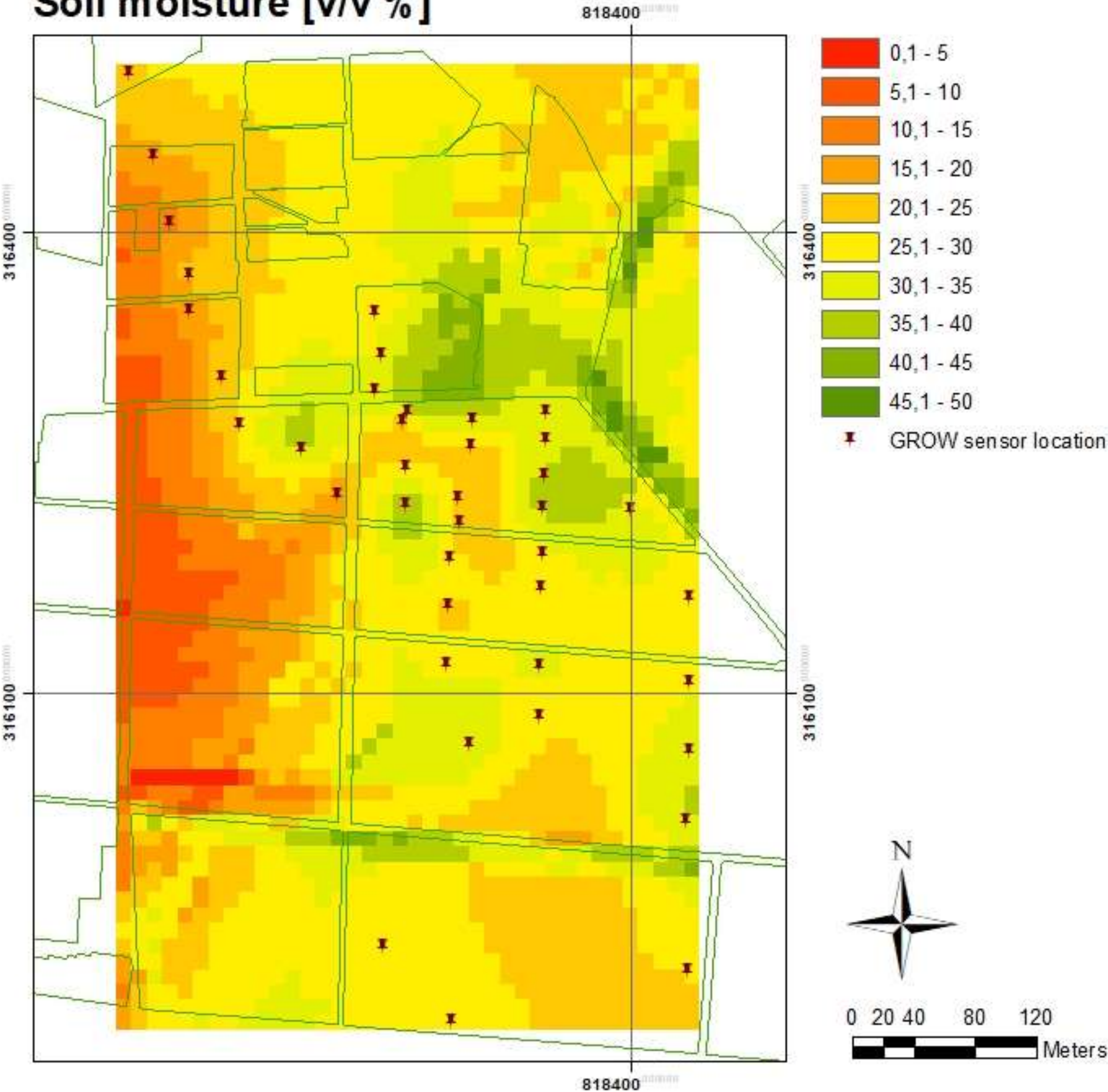
37,4 - 42,4

42,5 - 47,7

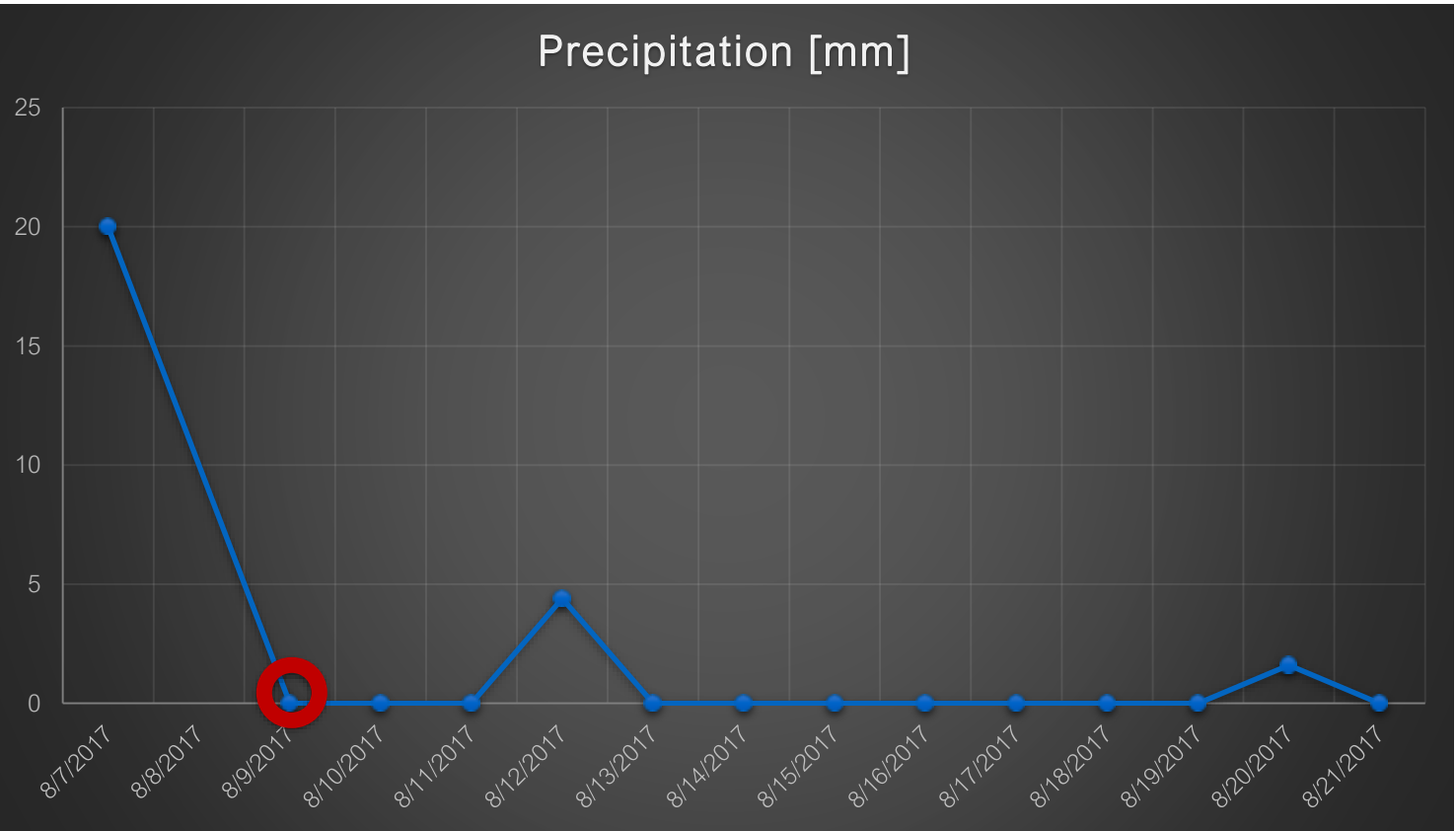
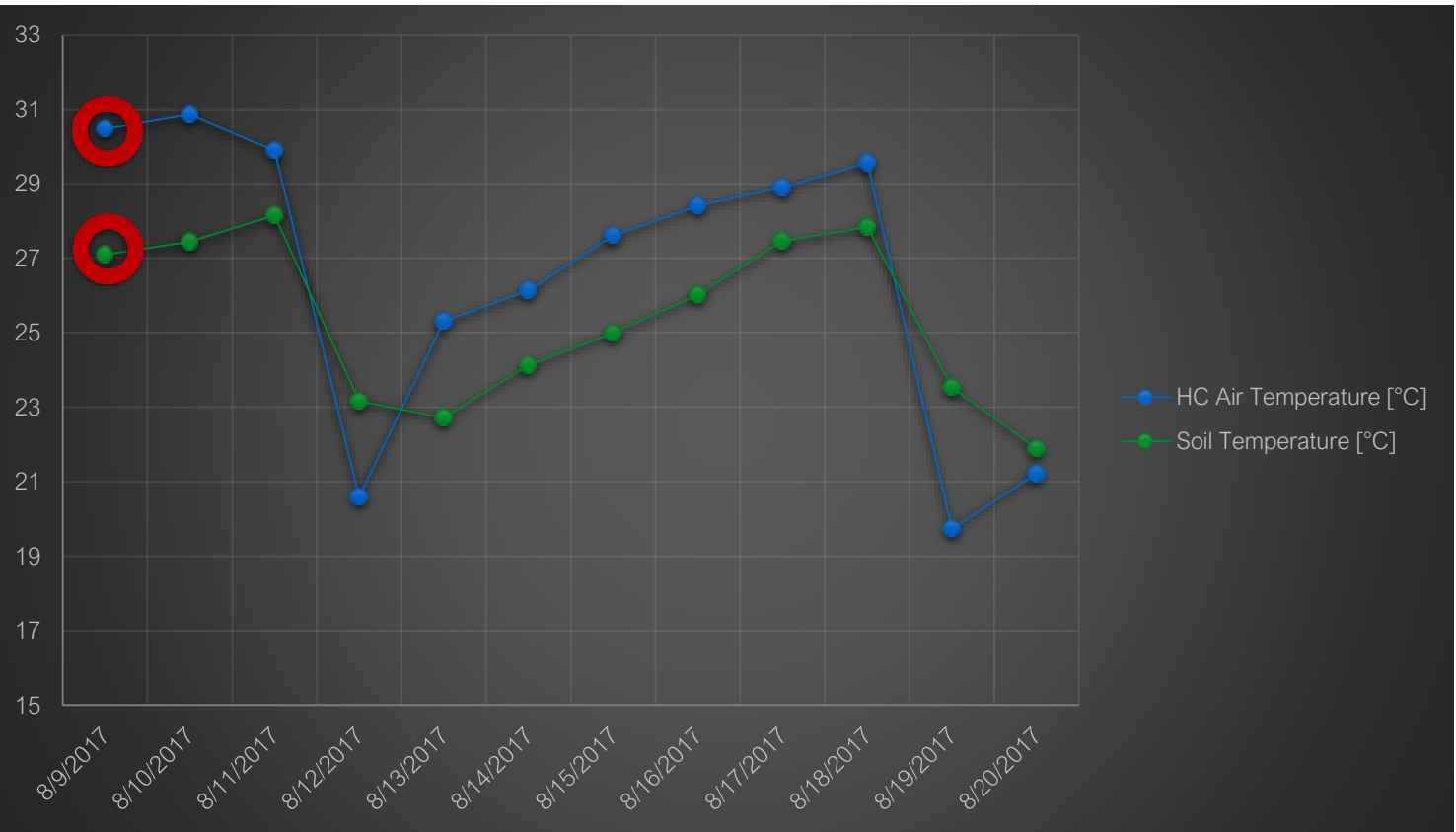
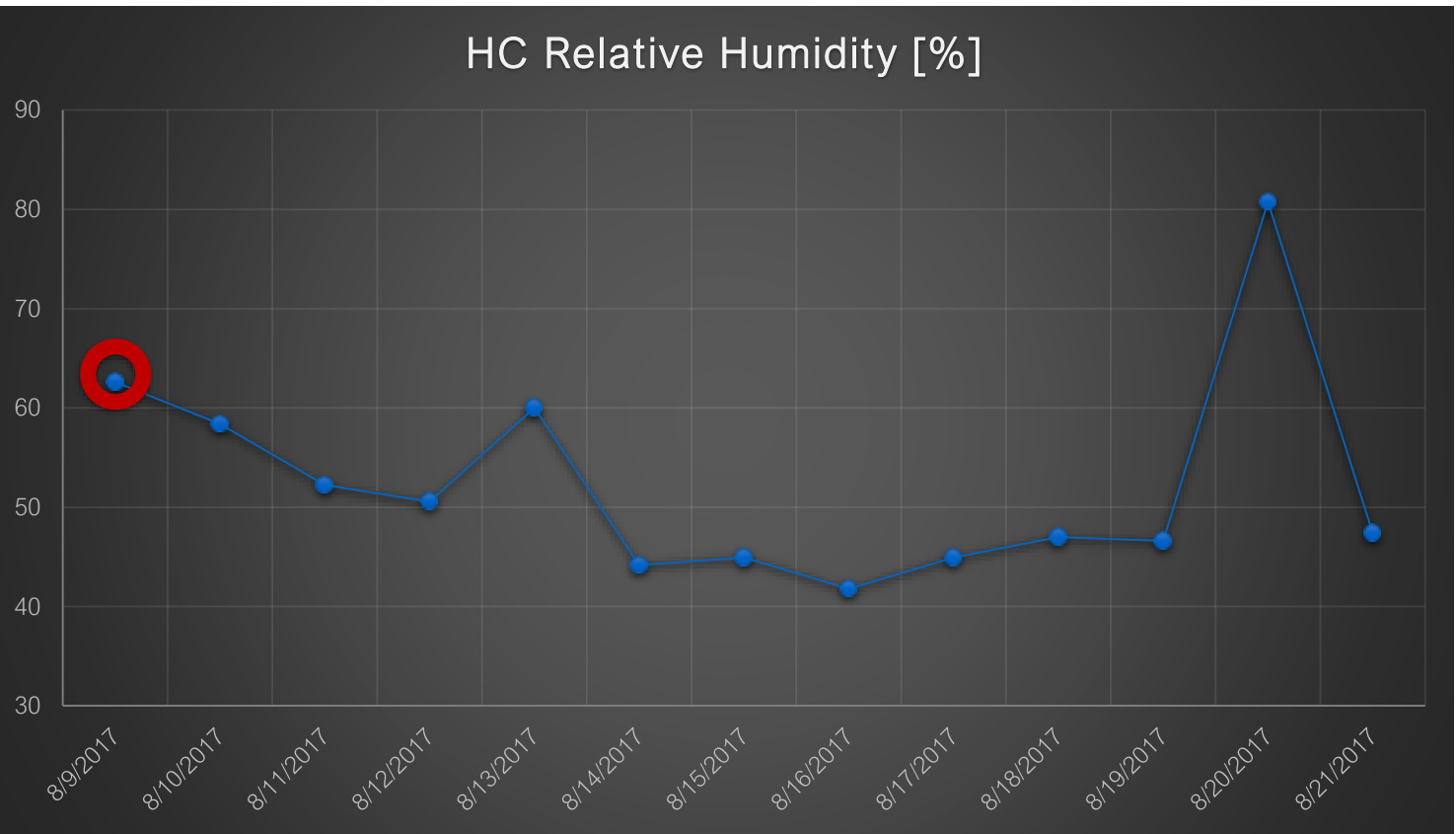
47,8 - 63,7



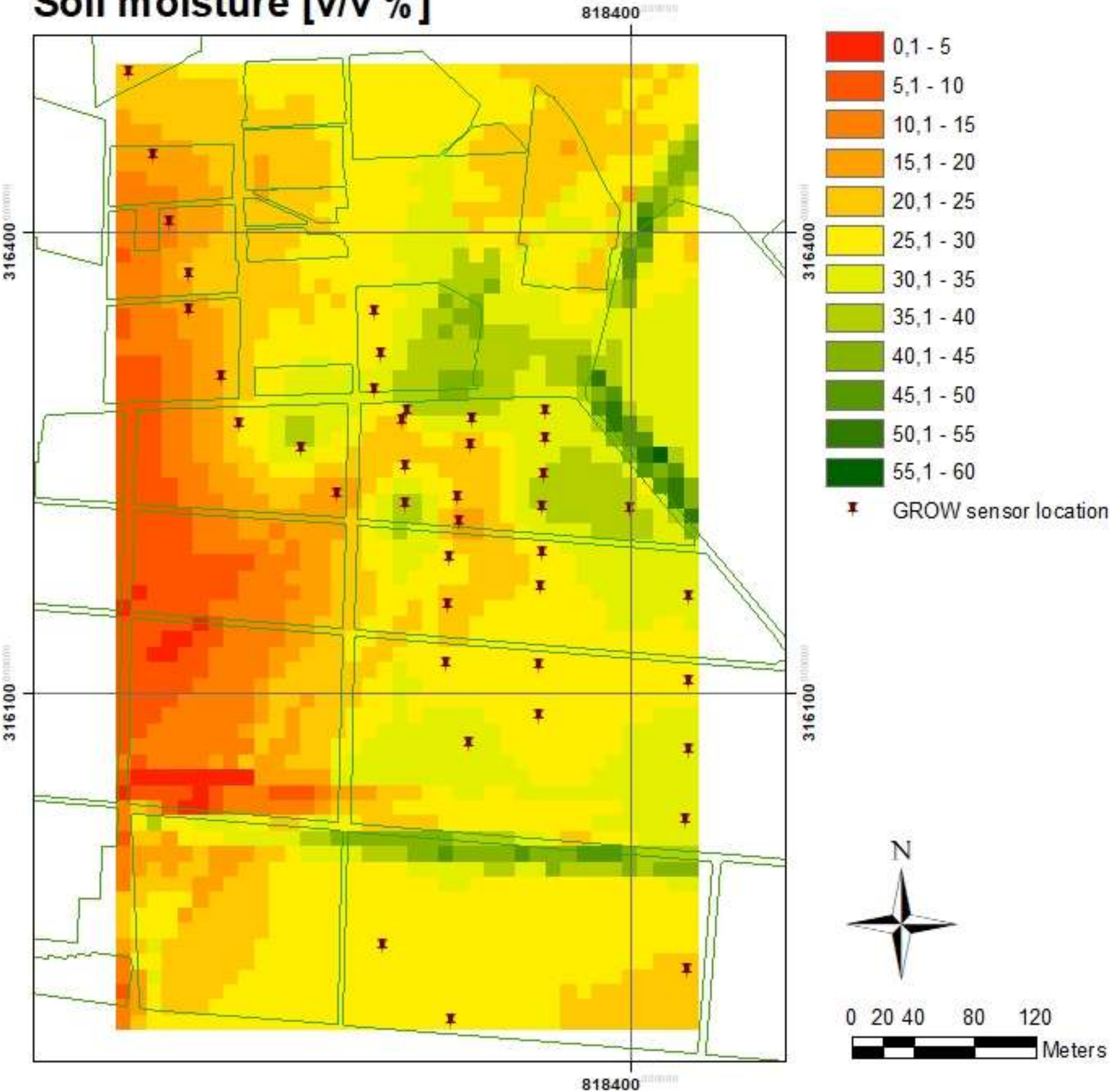
Soil moisture [v/v %]



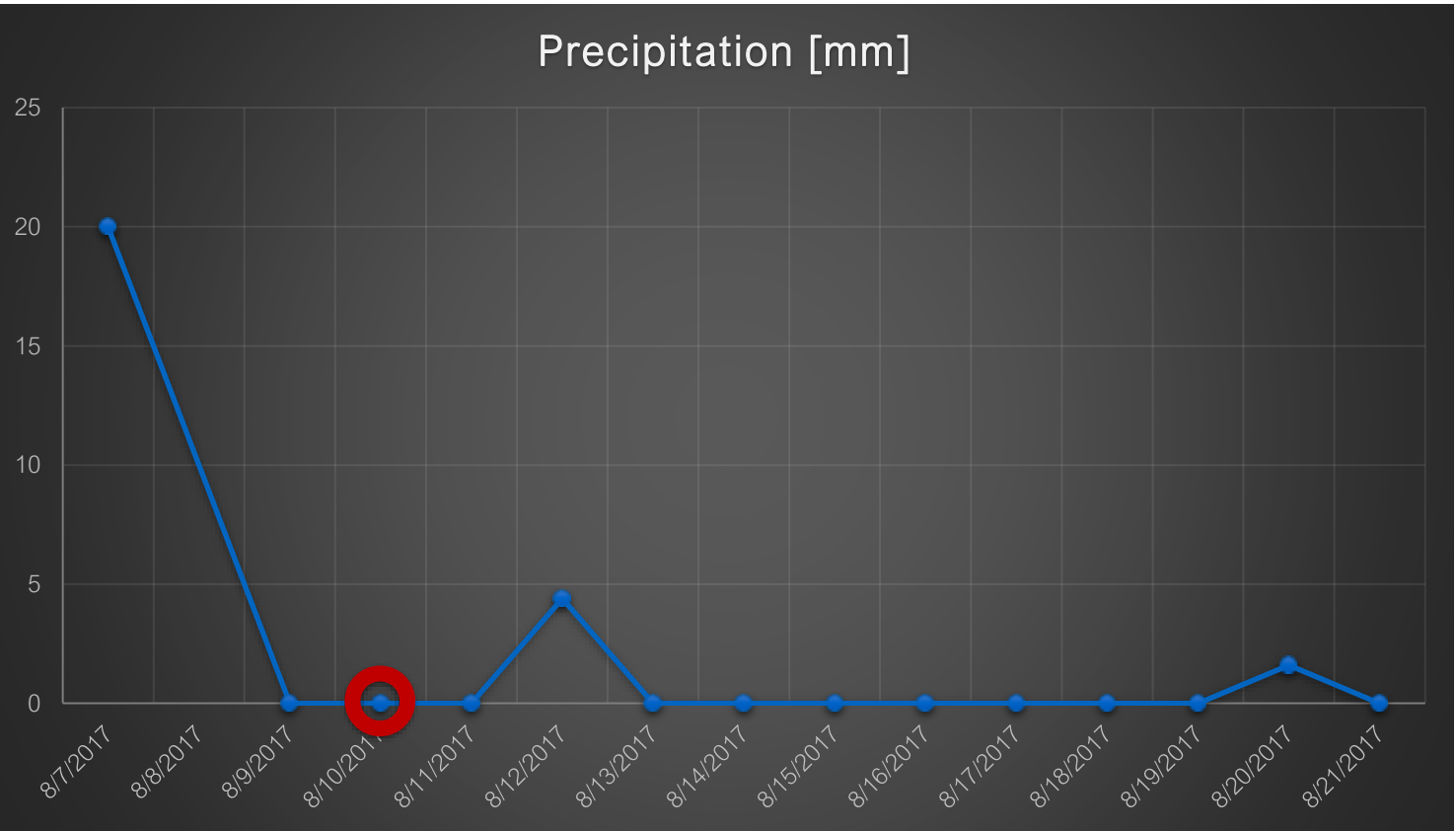
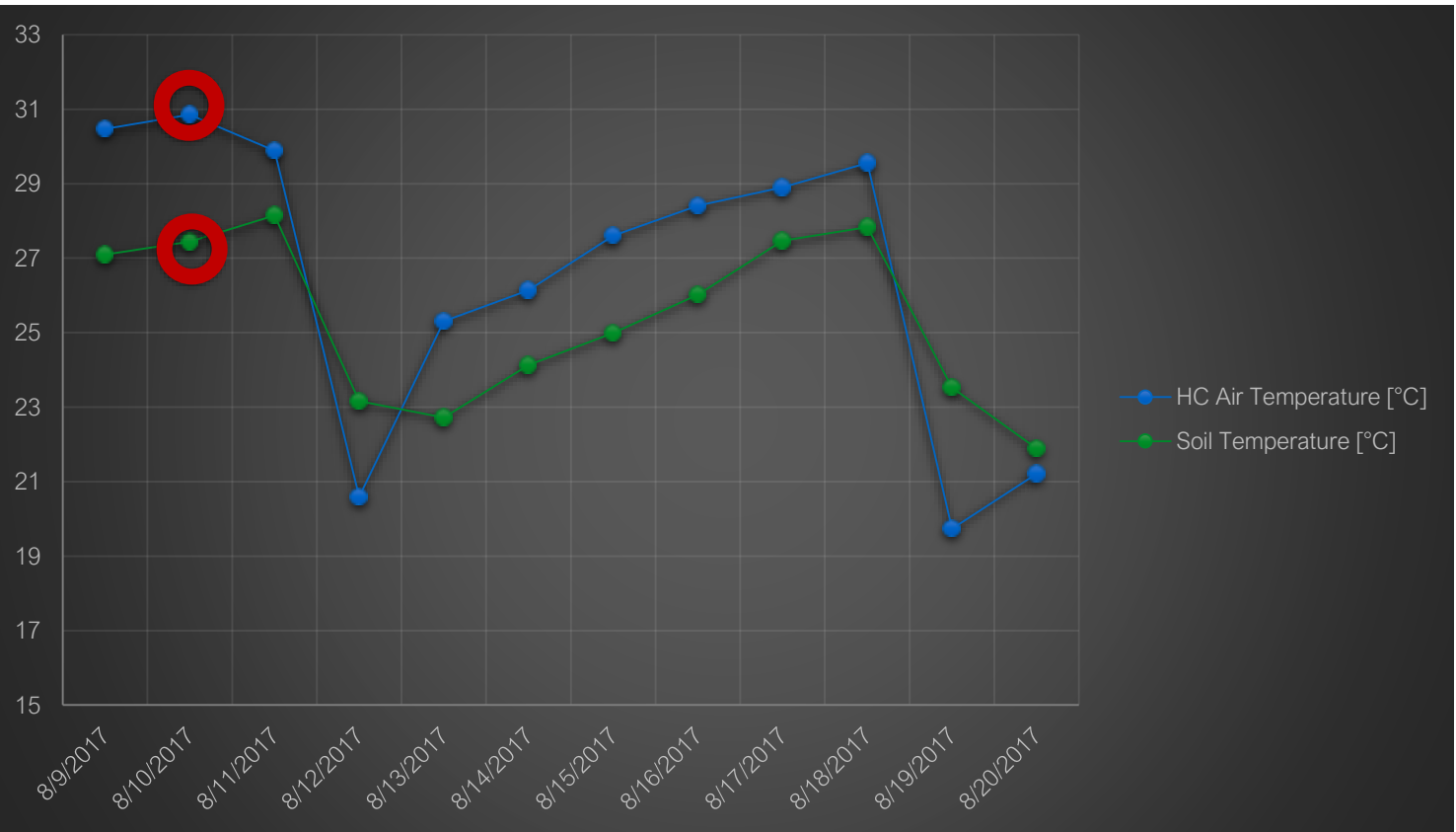
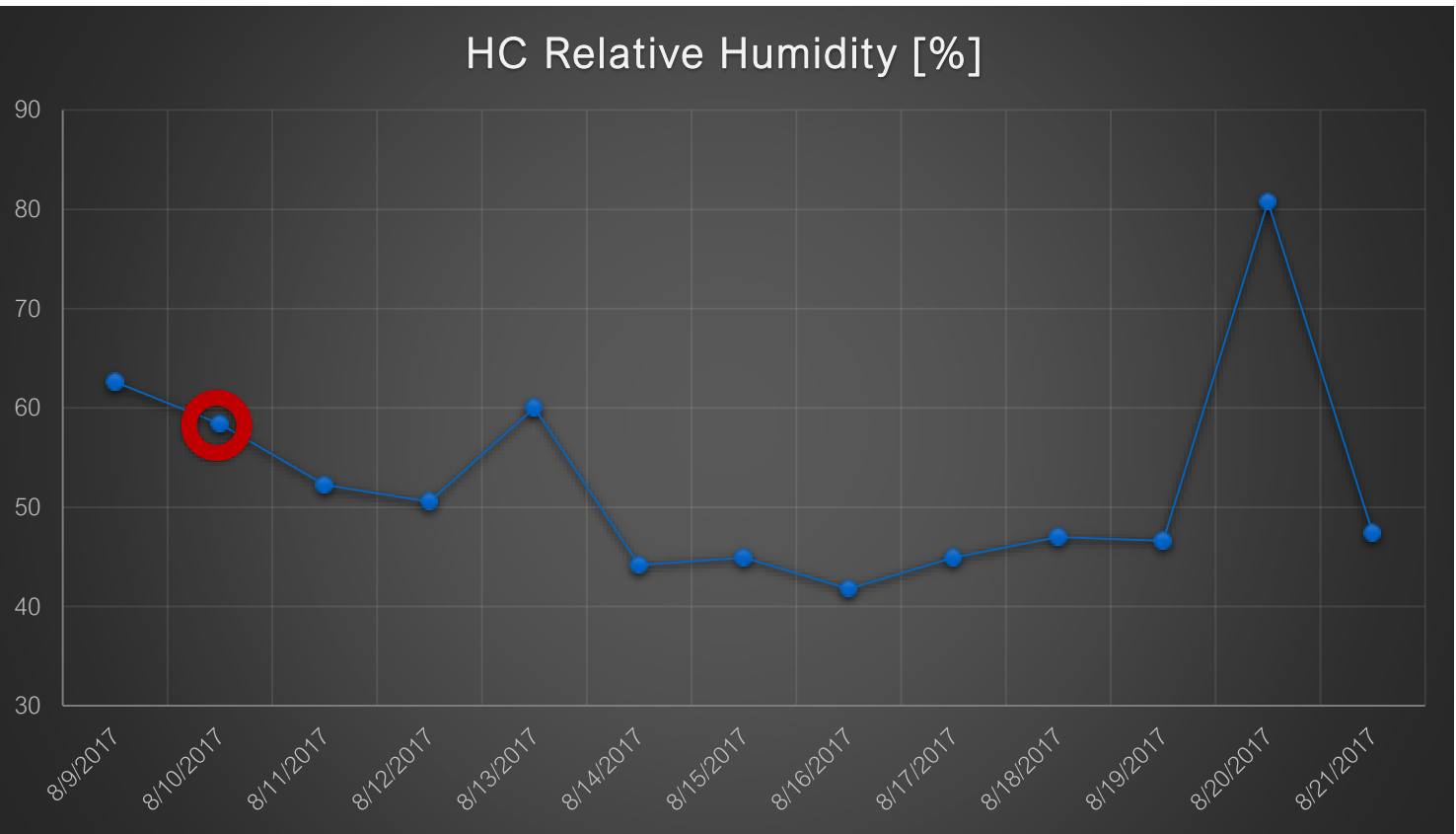
Explanatory data of the weather stations



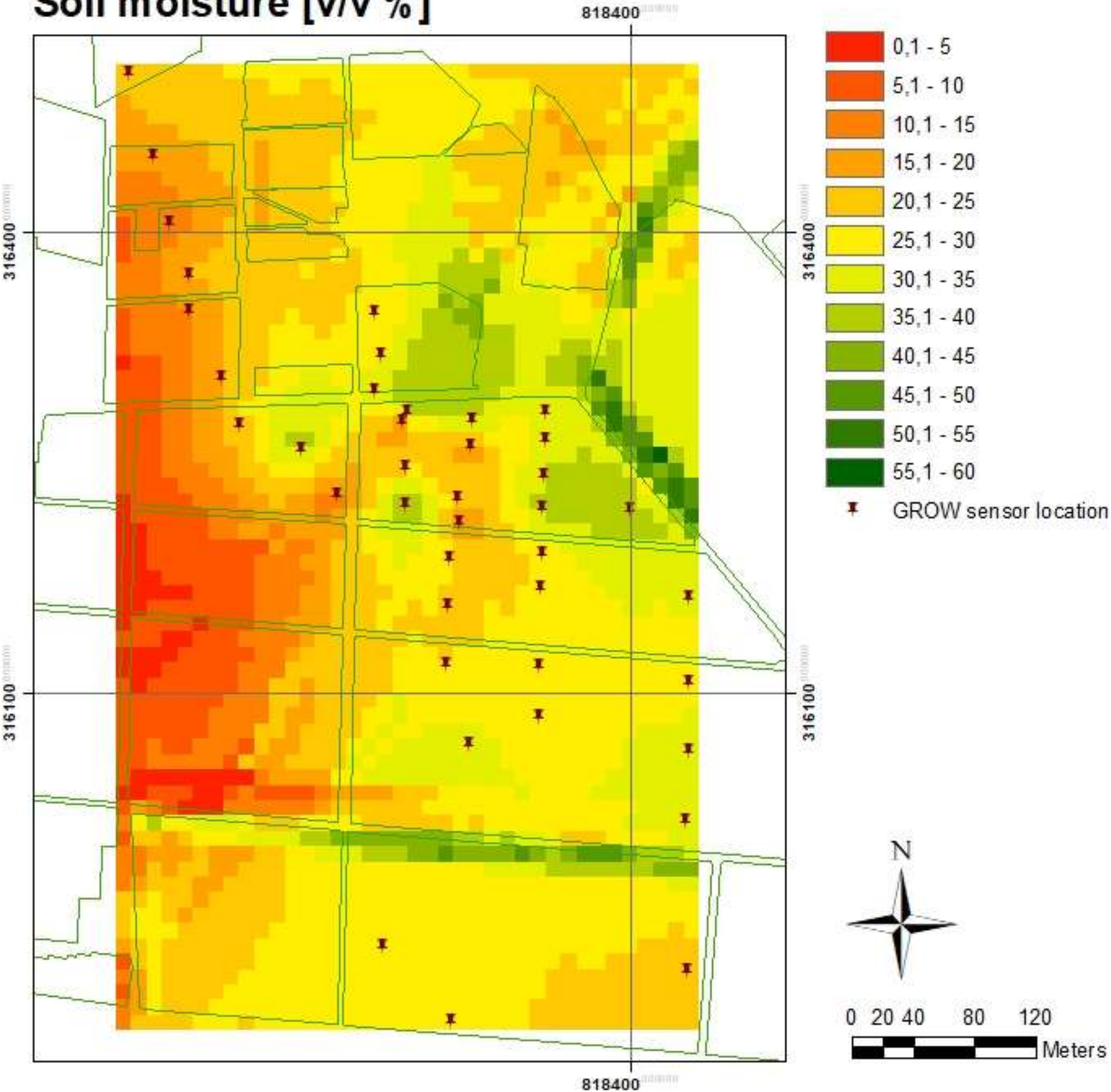
Soil moisture [v/v %]



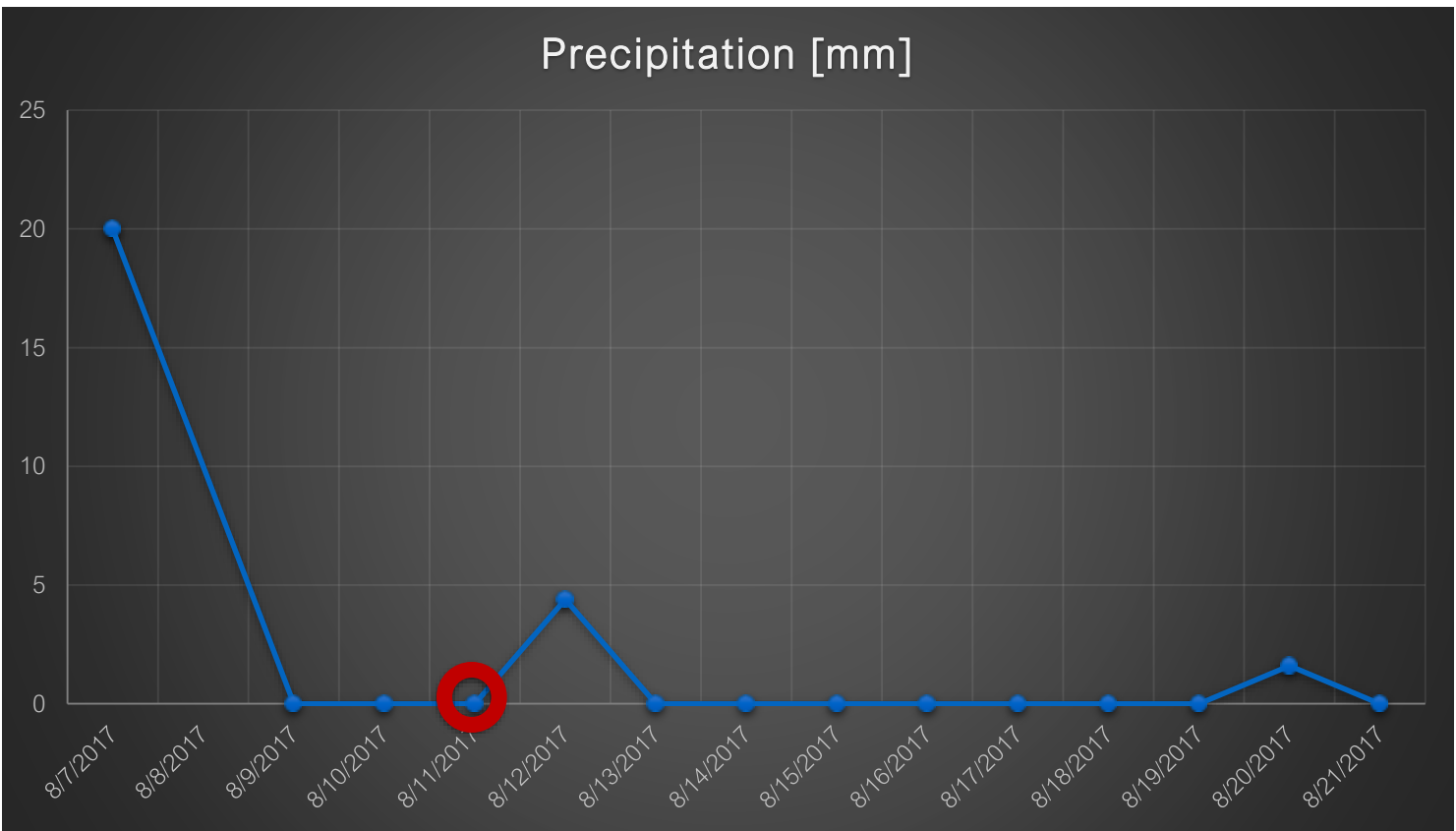
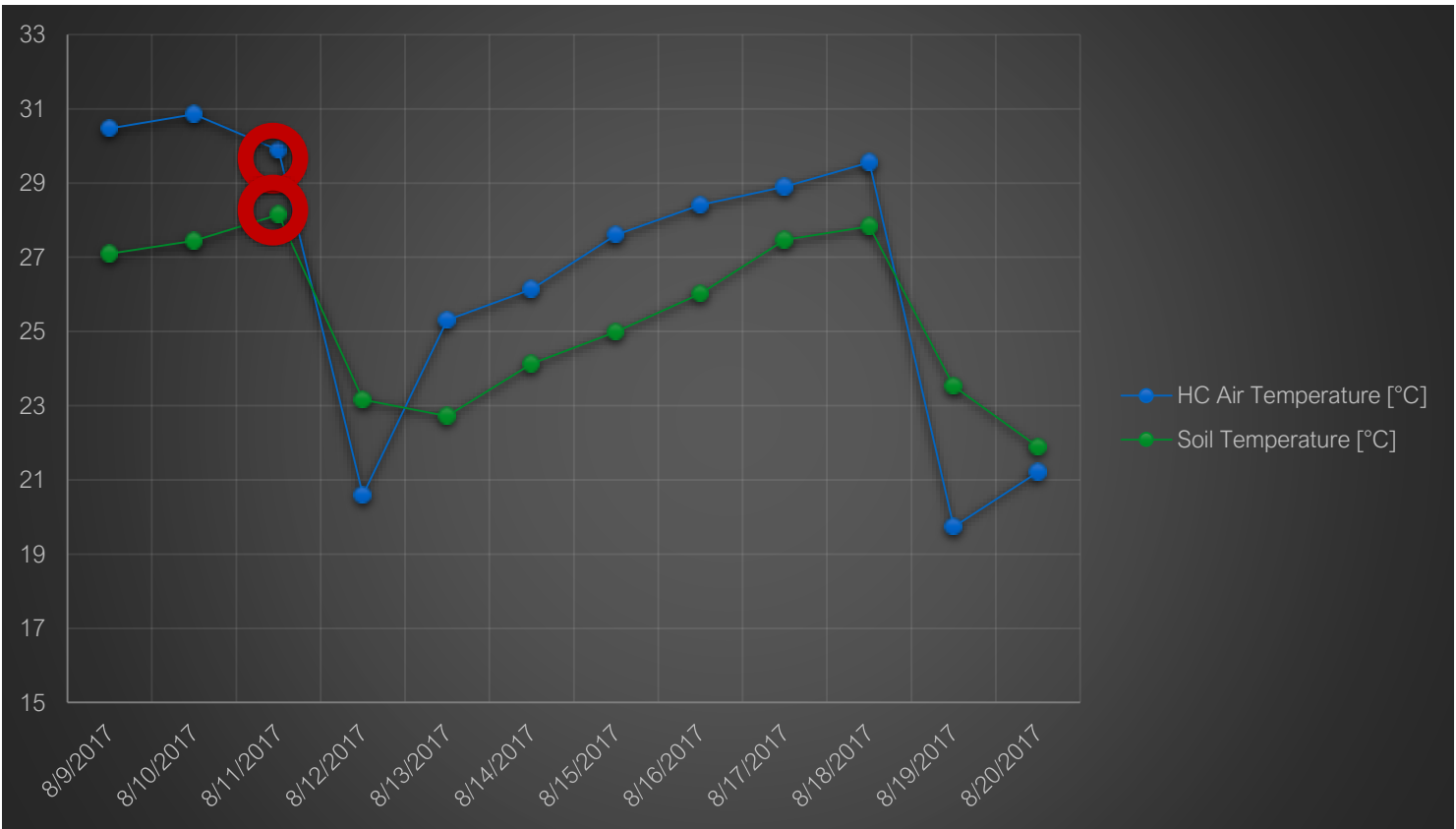
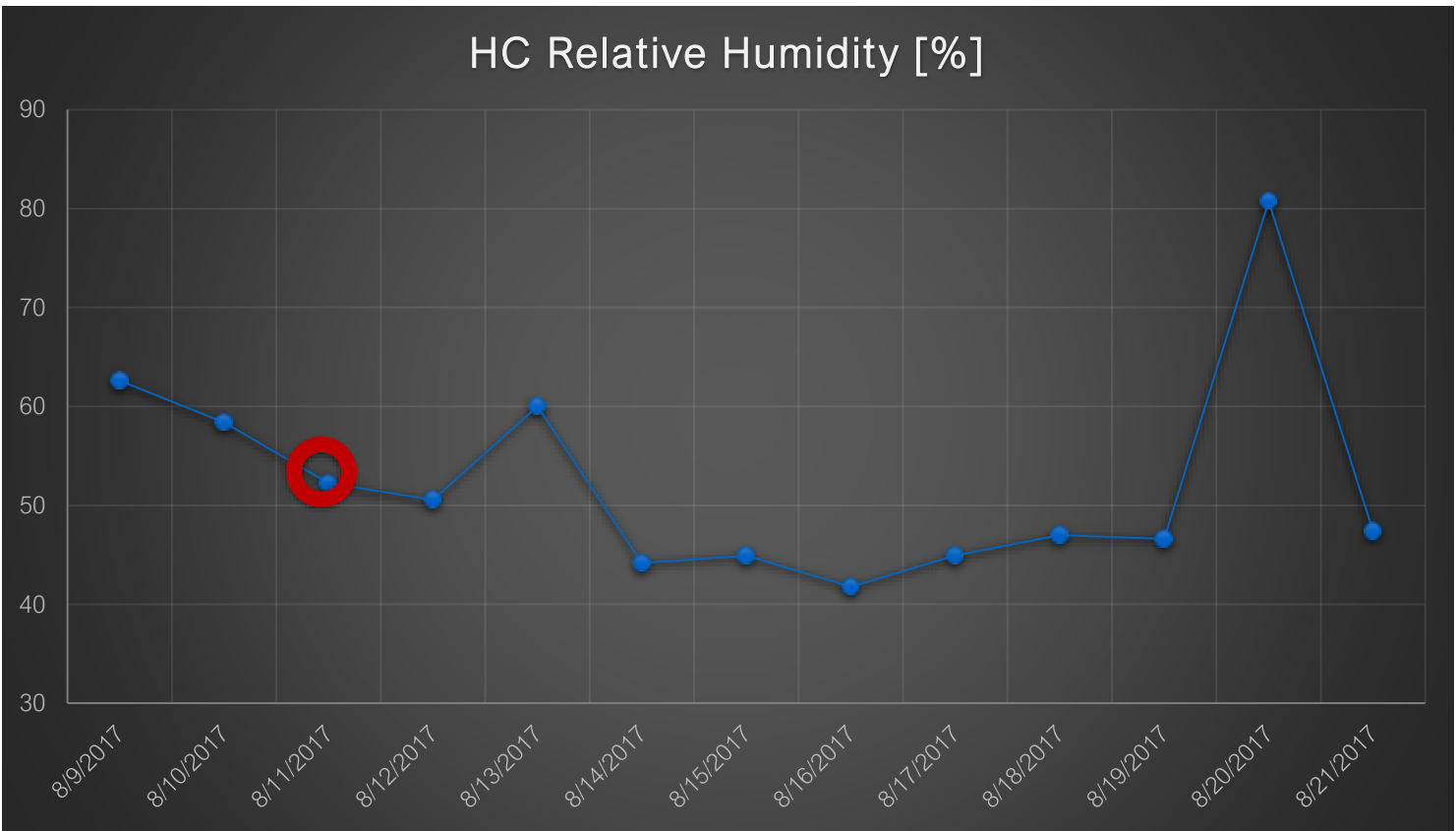
Explanatory data of the weather stations



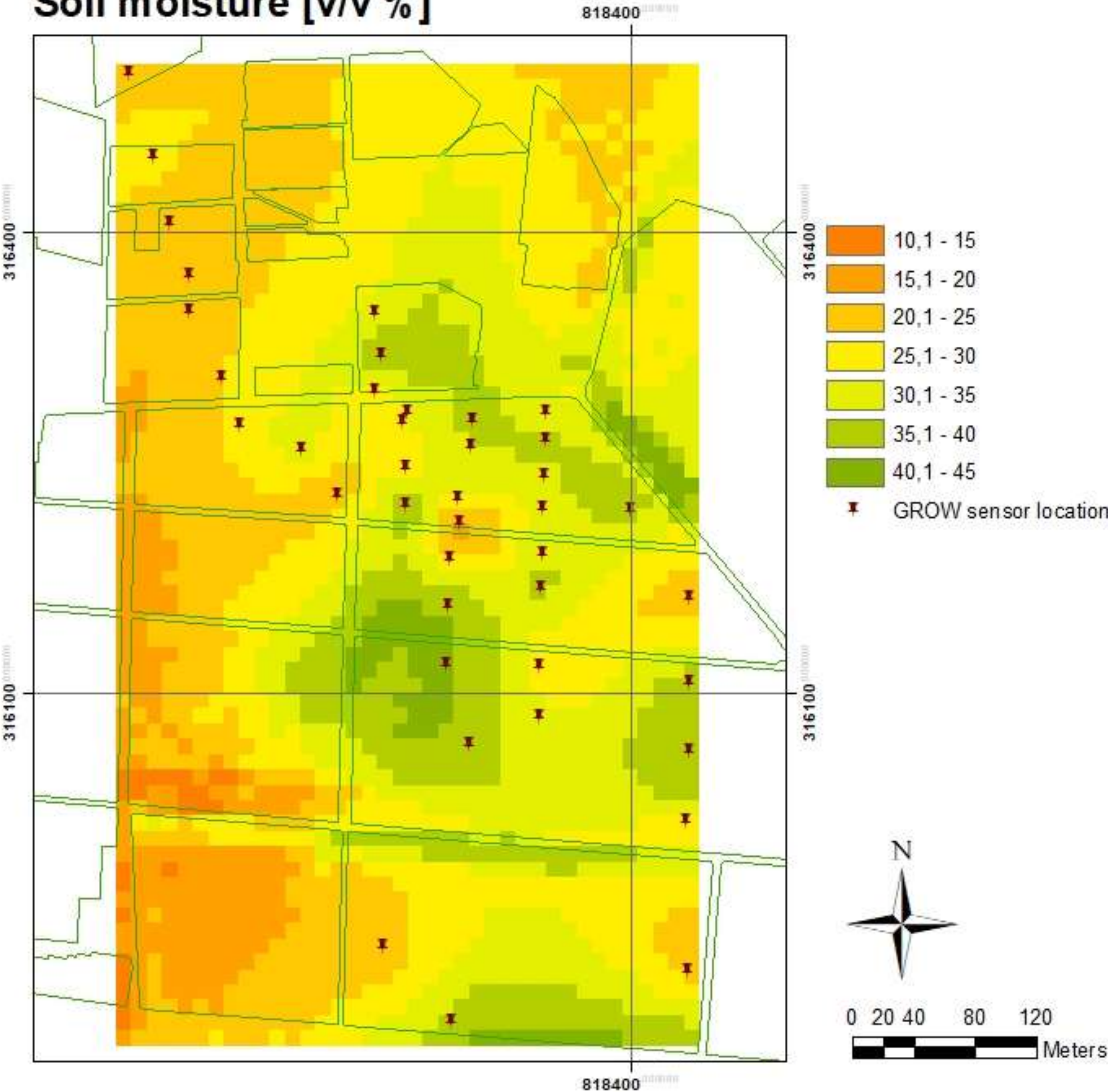
Soil moisture [v/v %]



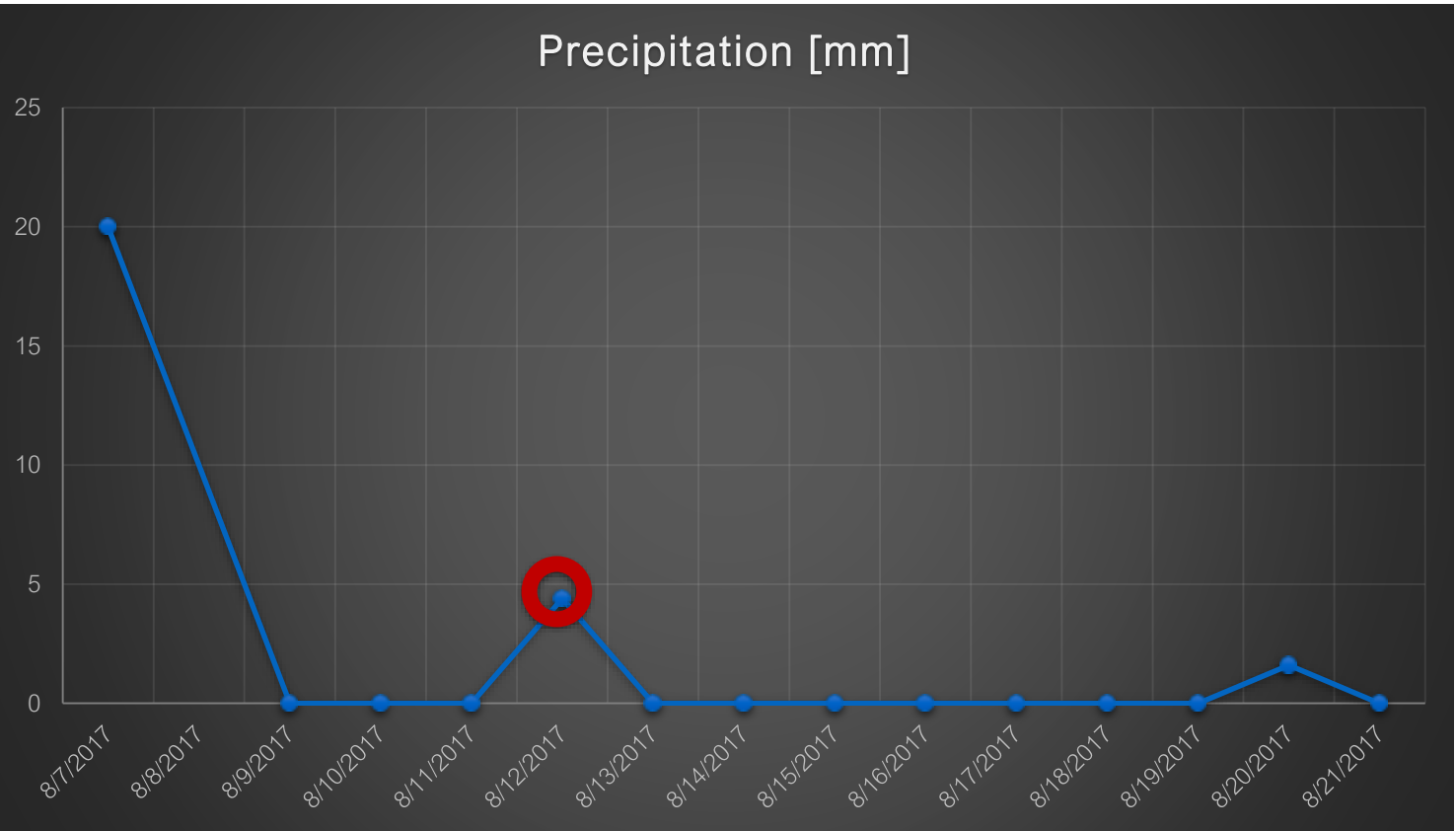
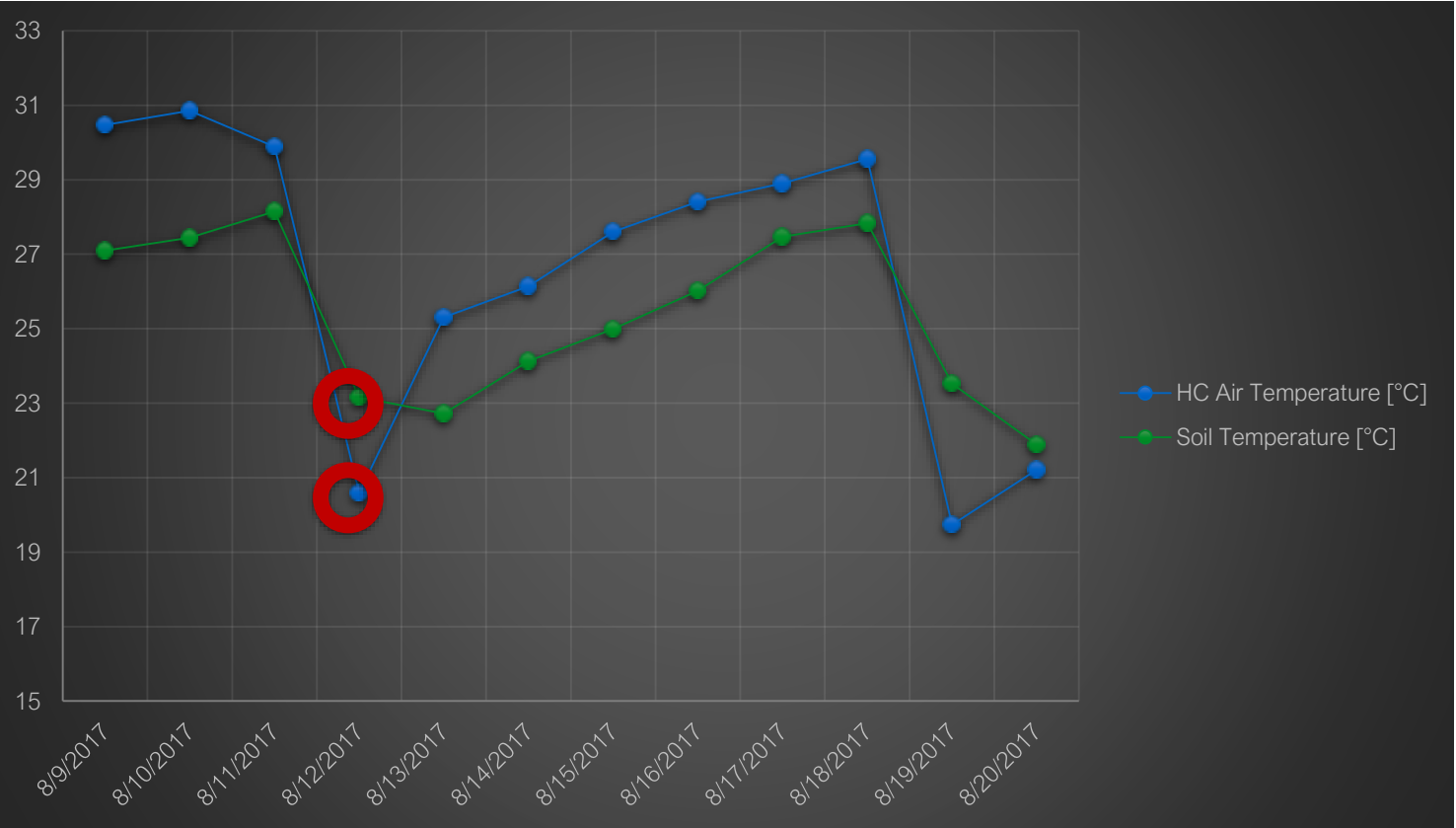
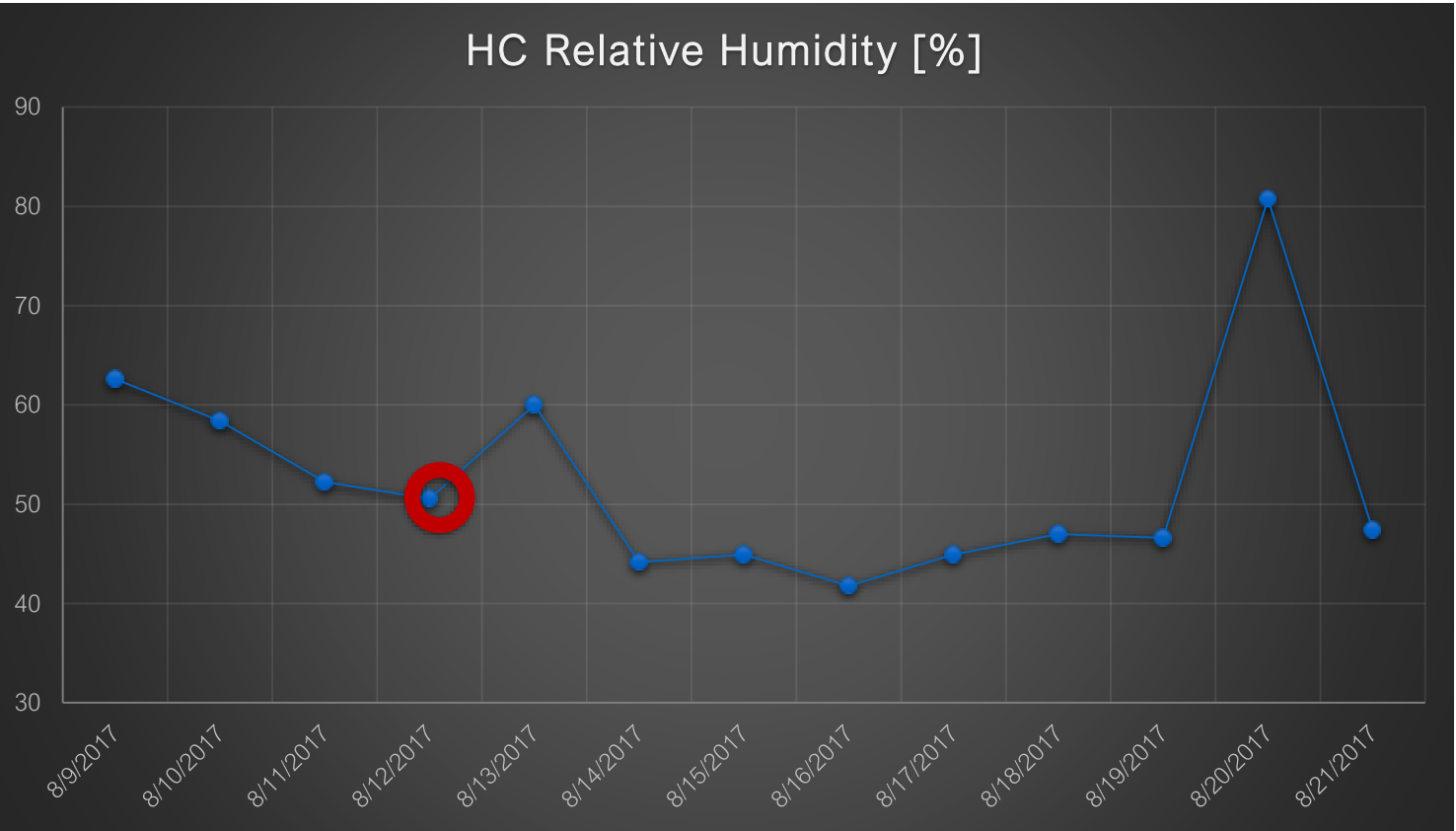
Explanatory data of the weather stations



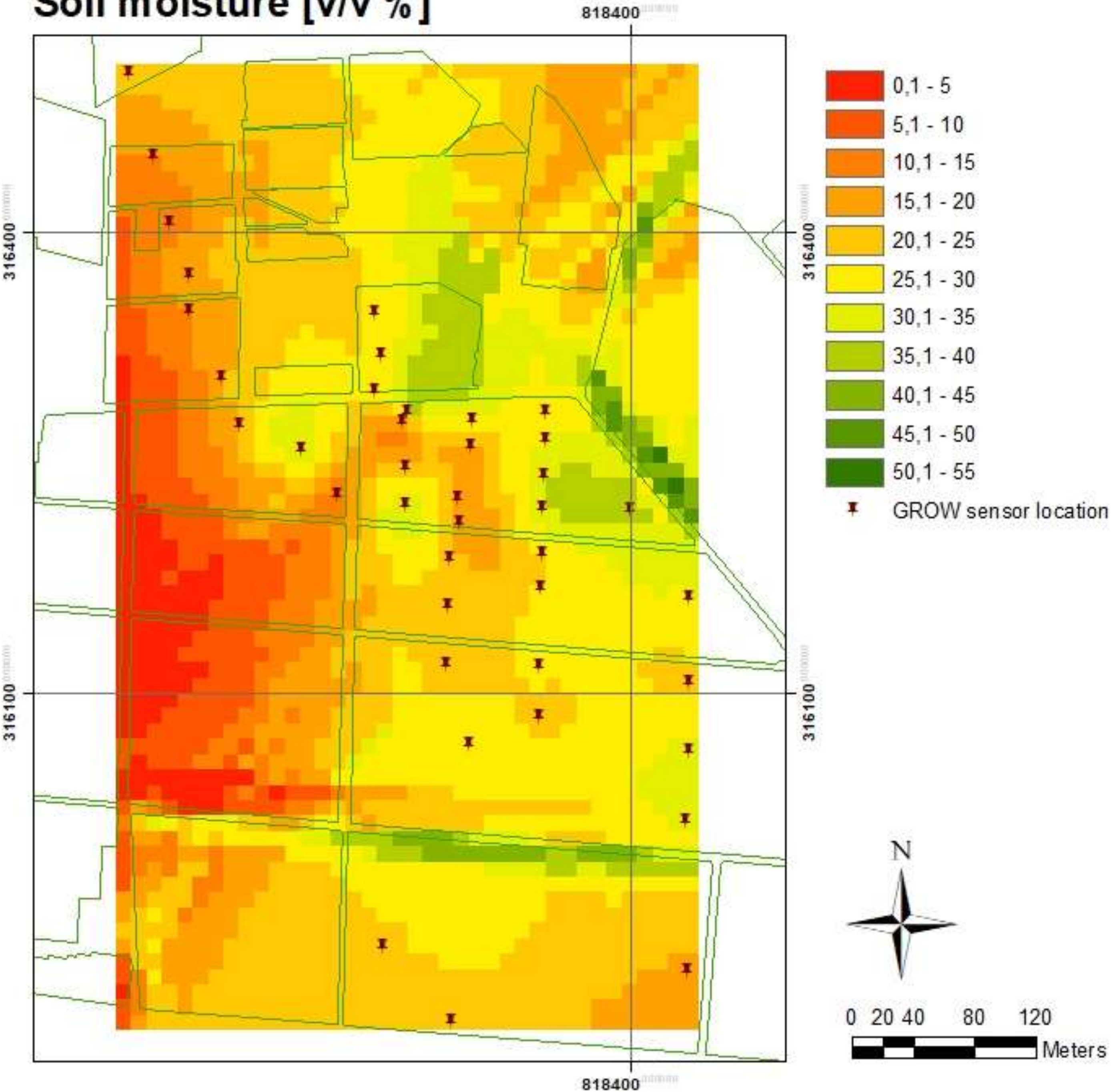
Soil moisture [v/v %]



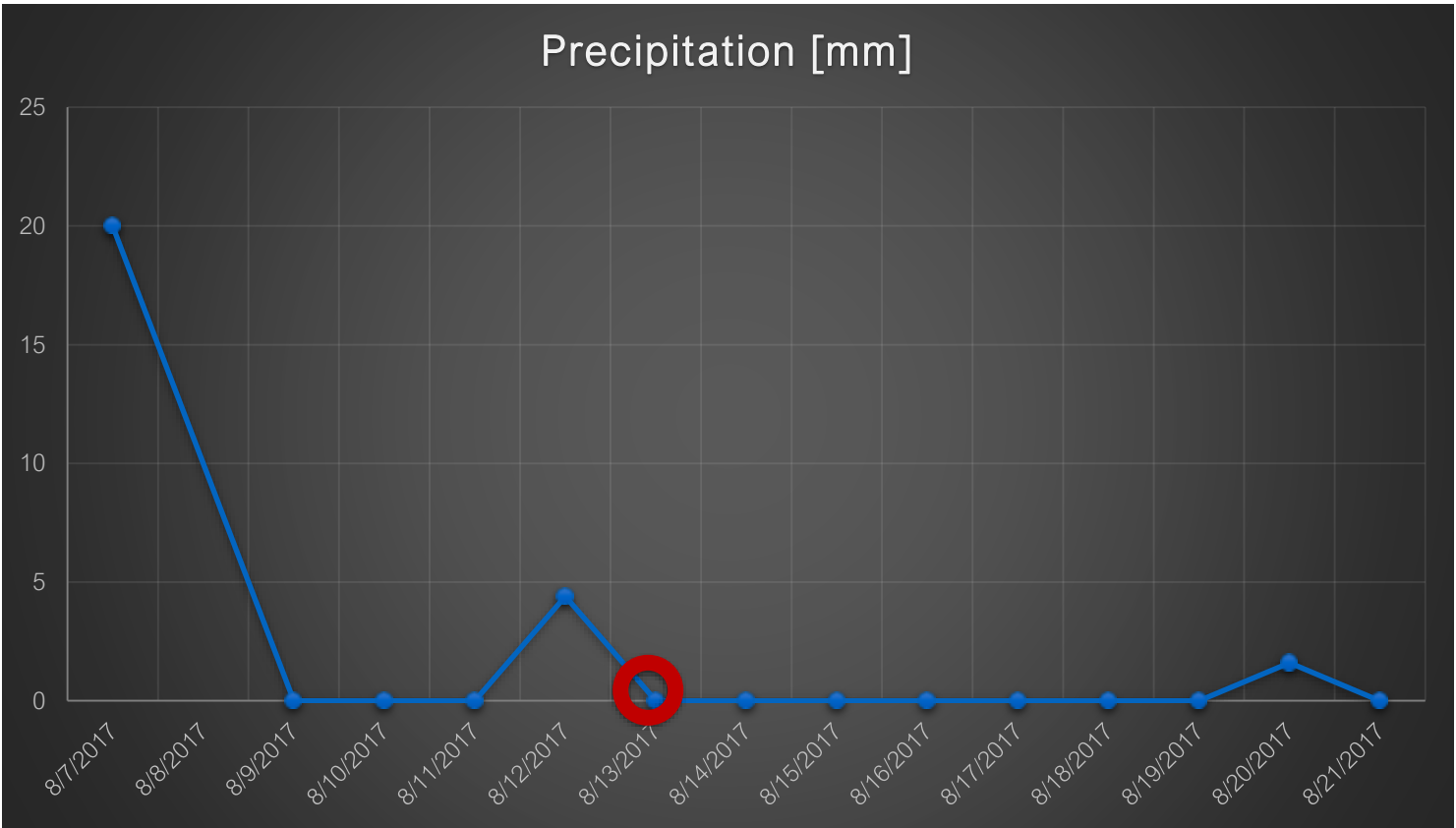
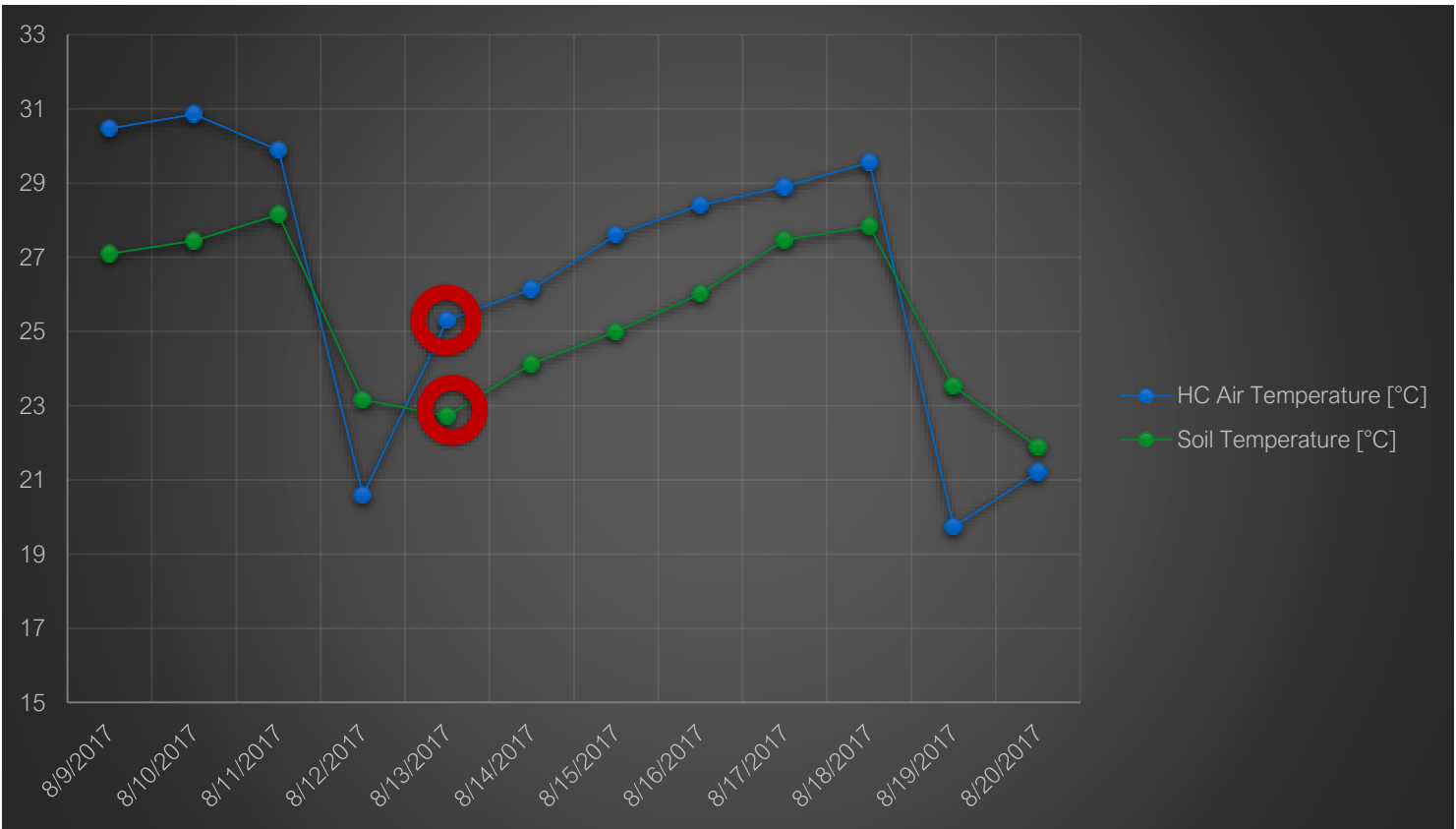
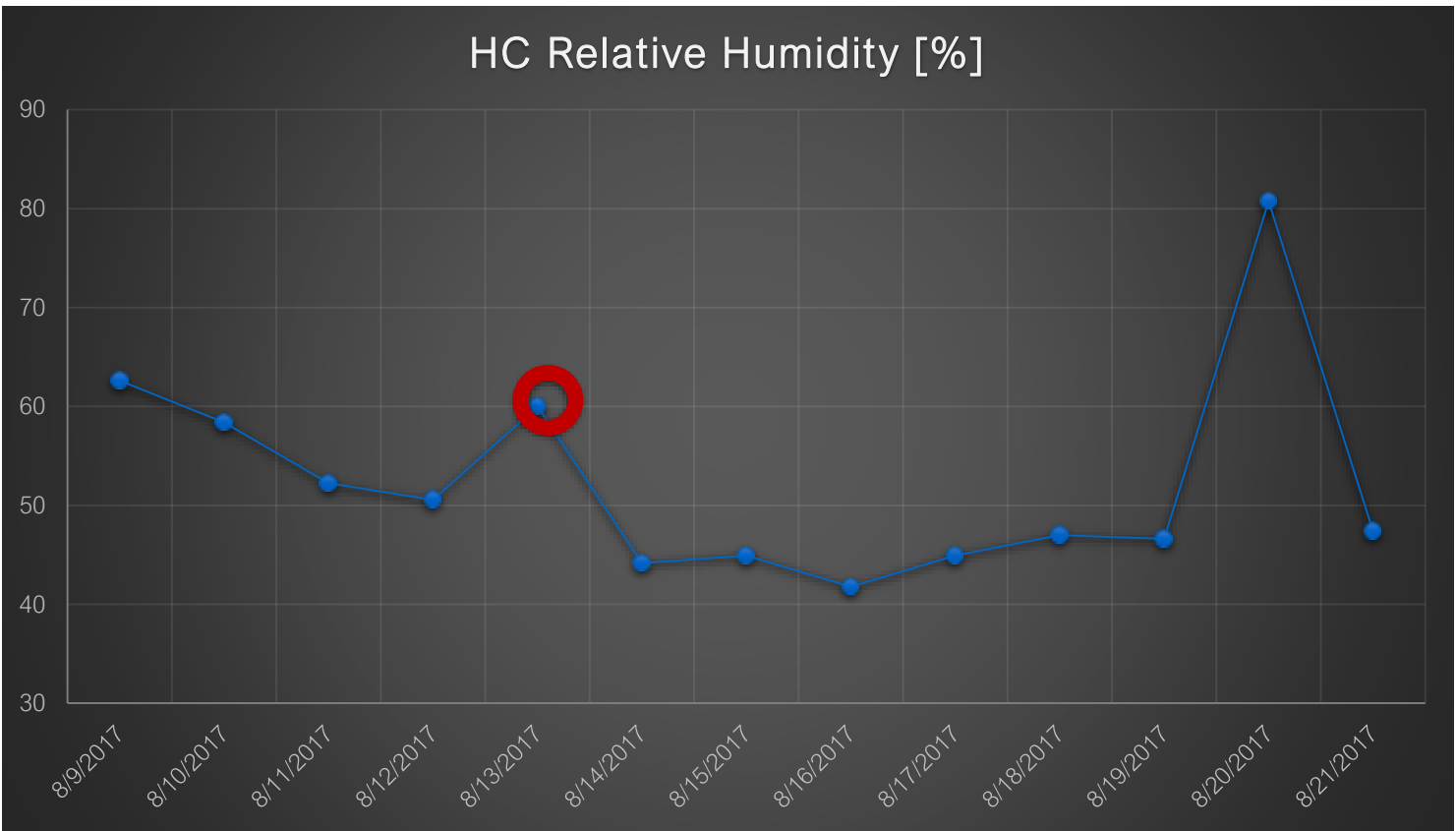
Explanatory data of the weather stations



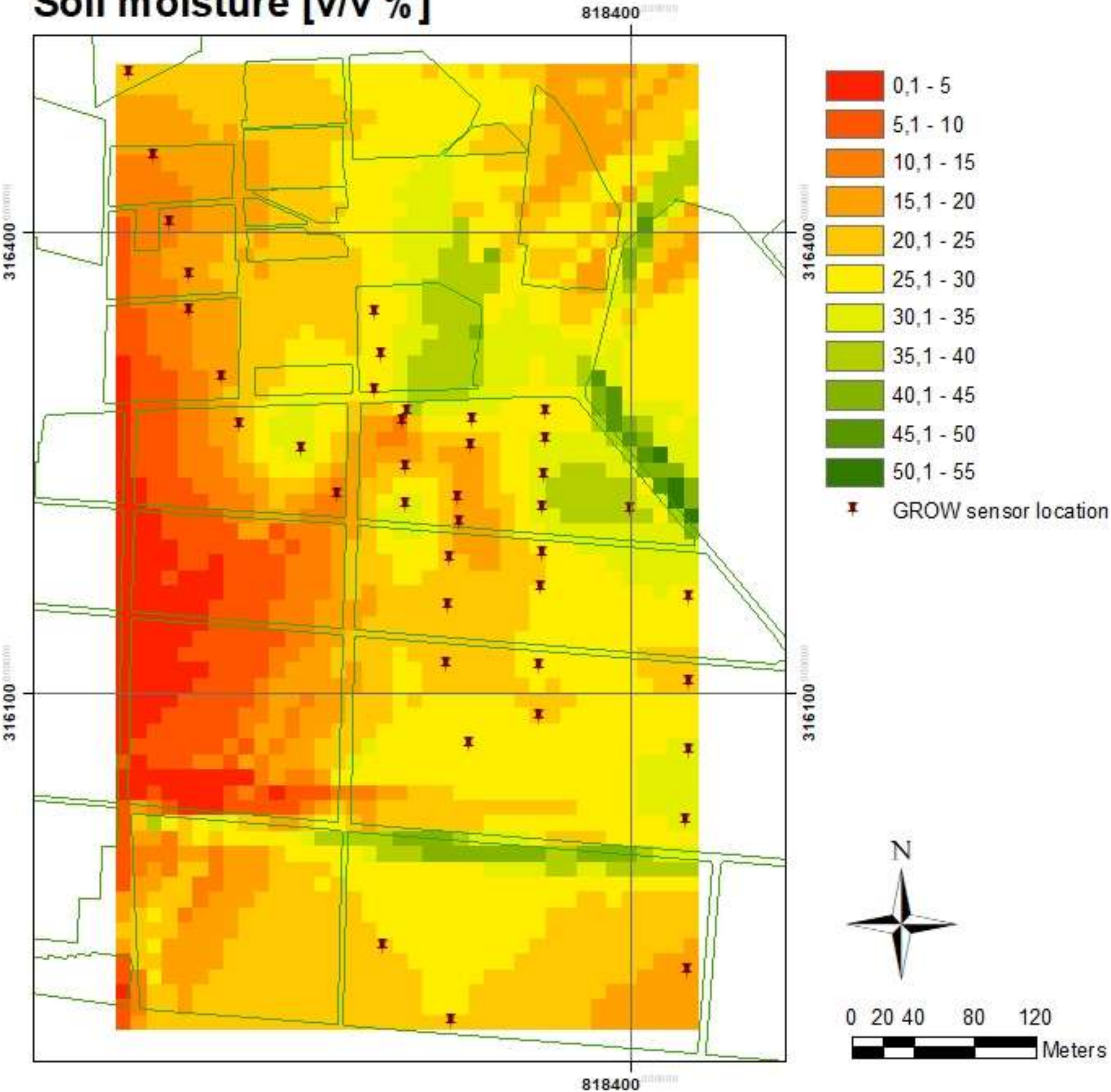
Soil moisture [v/v %]



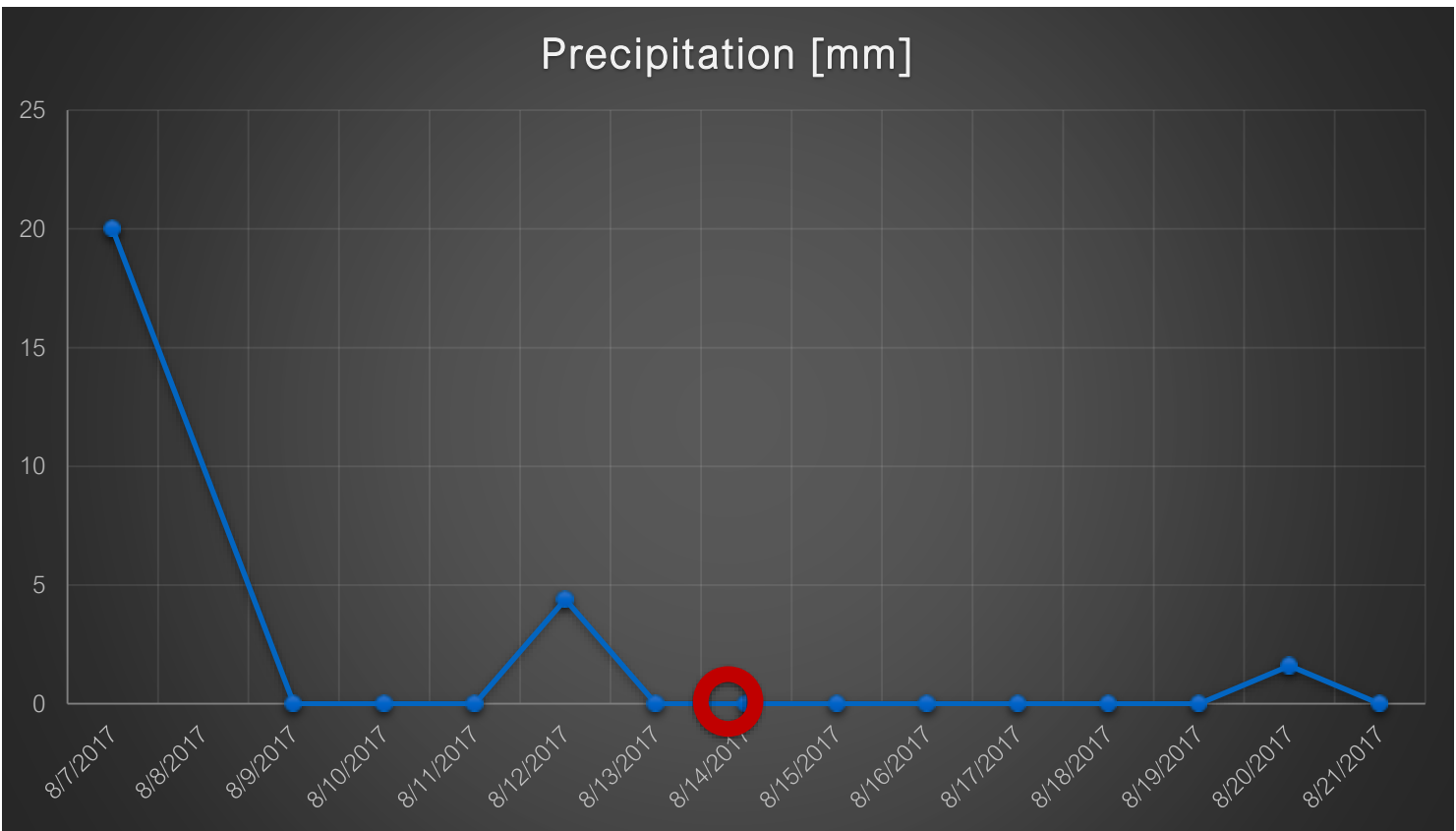
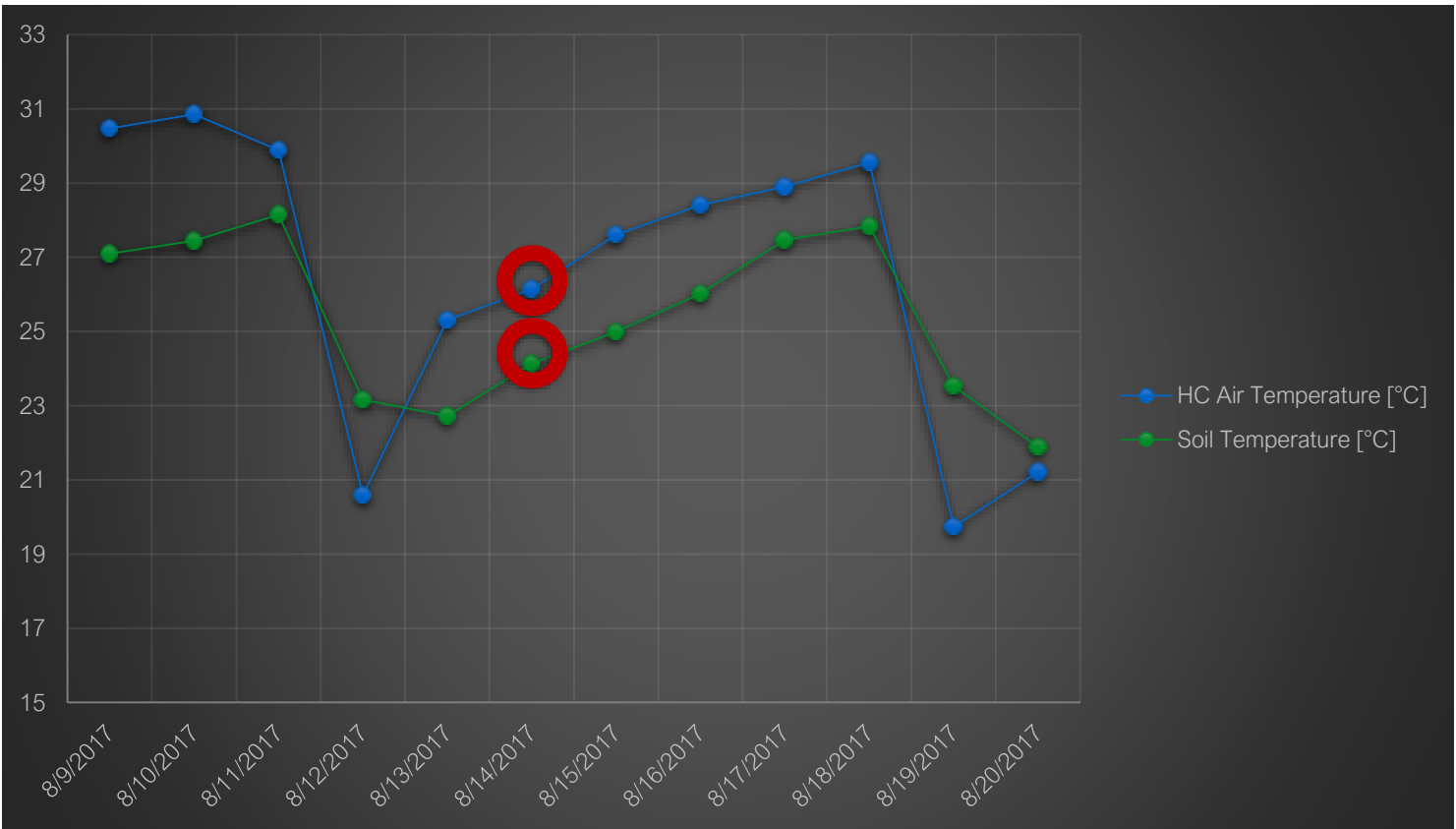
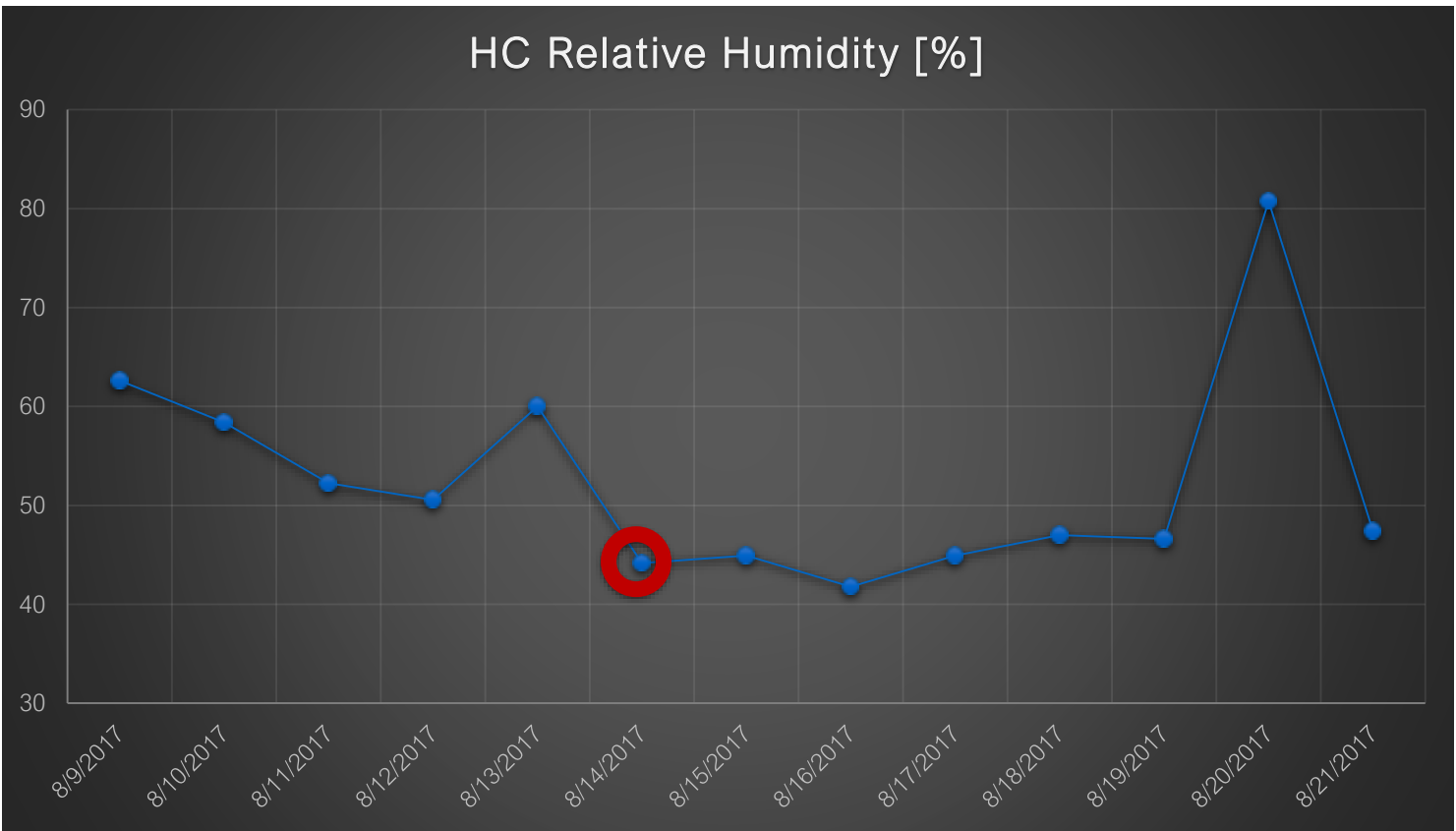
Explanatory data of the weather stations



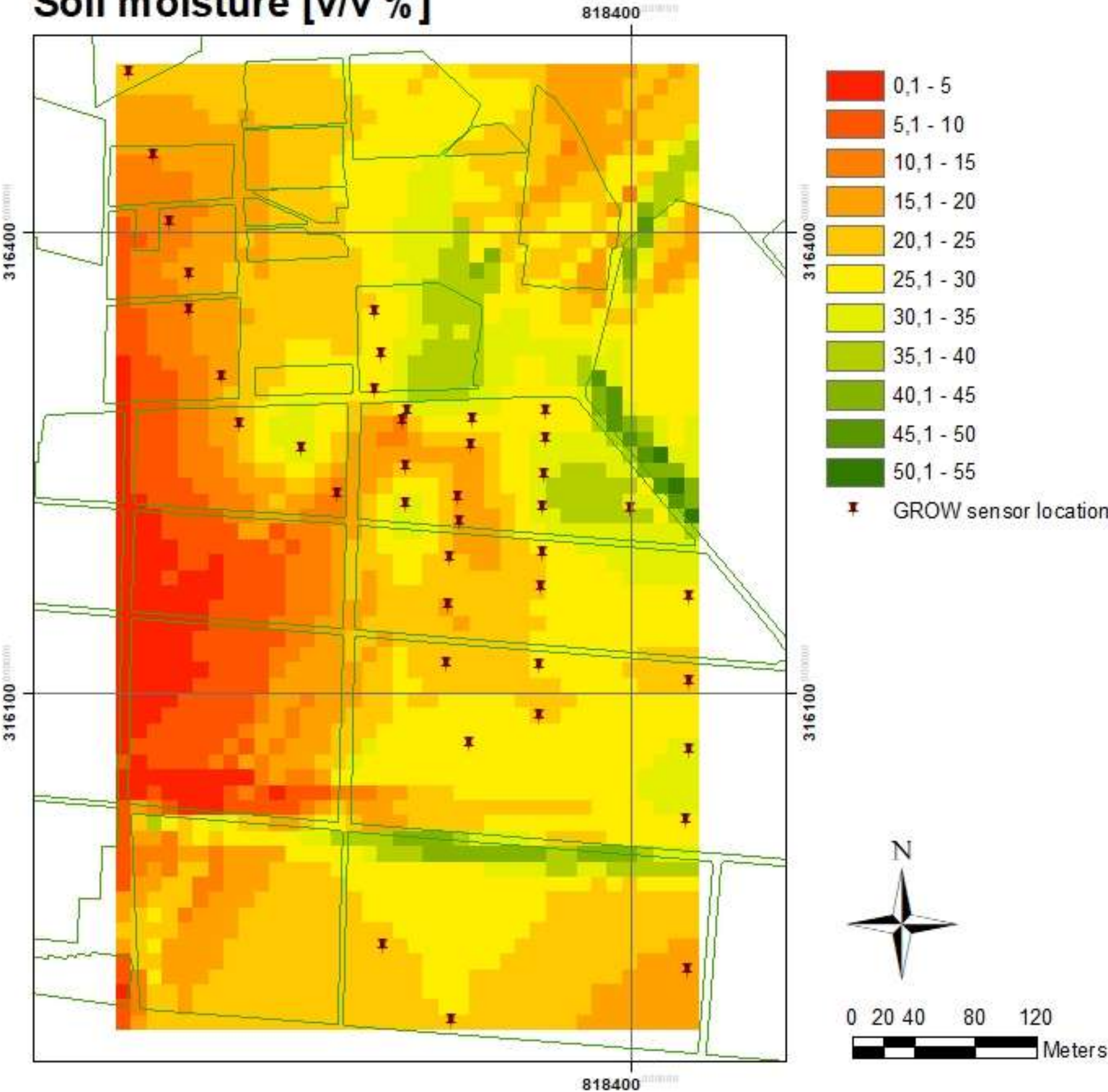
Soil moisture [v/v %]



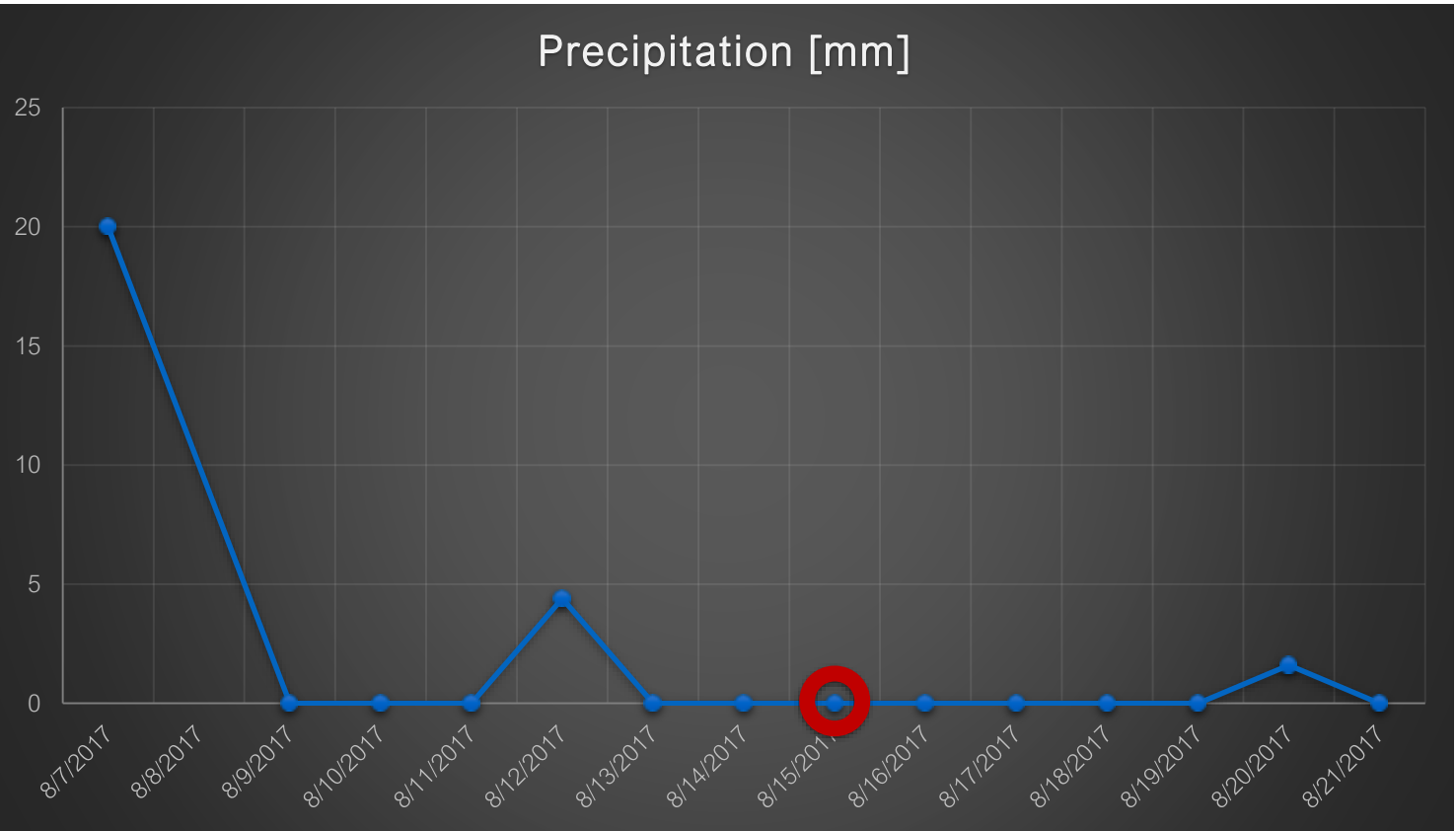
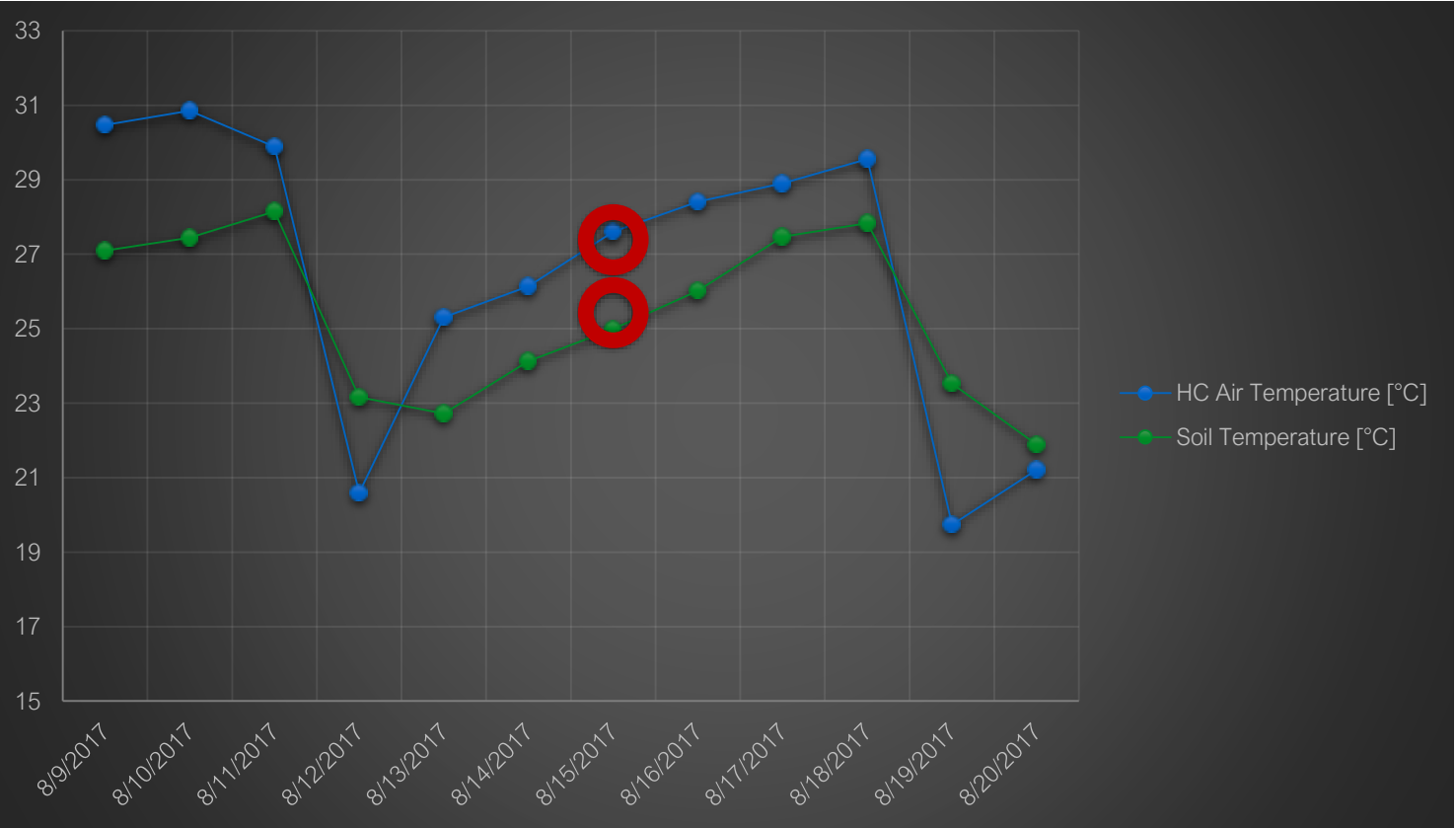
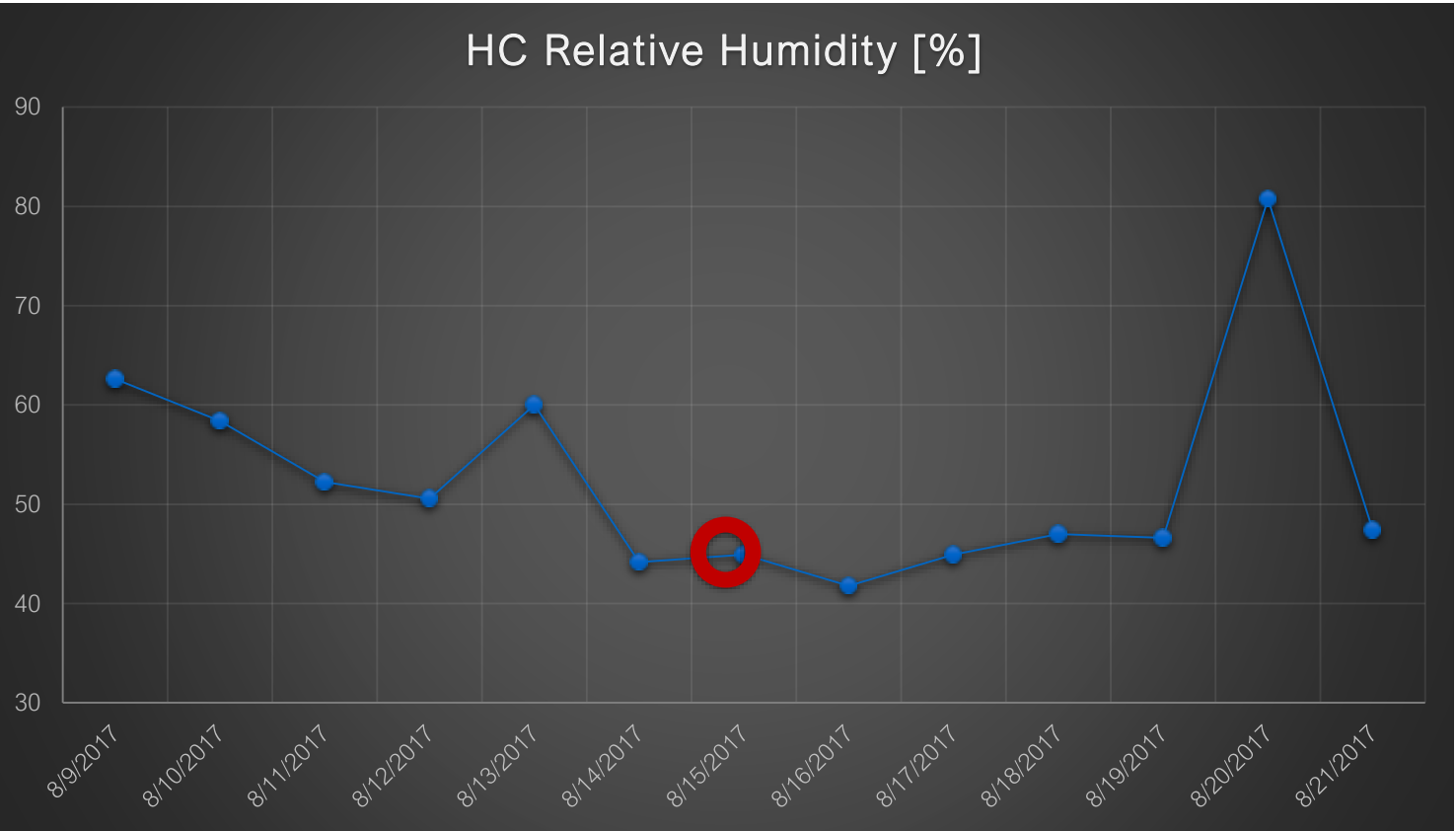
Explanatory data of the weather stations



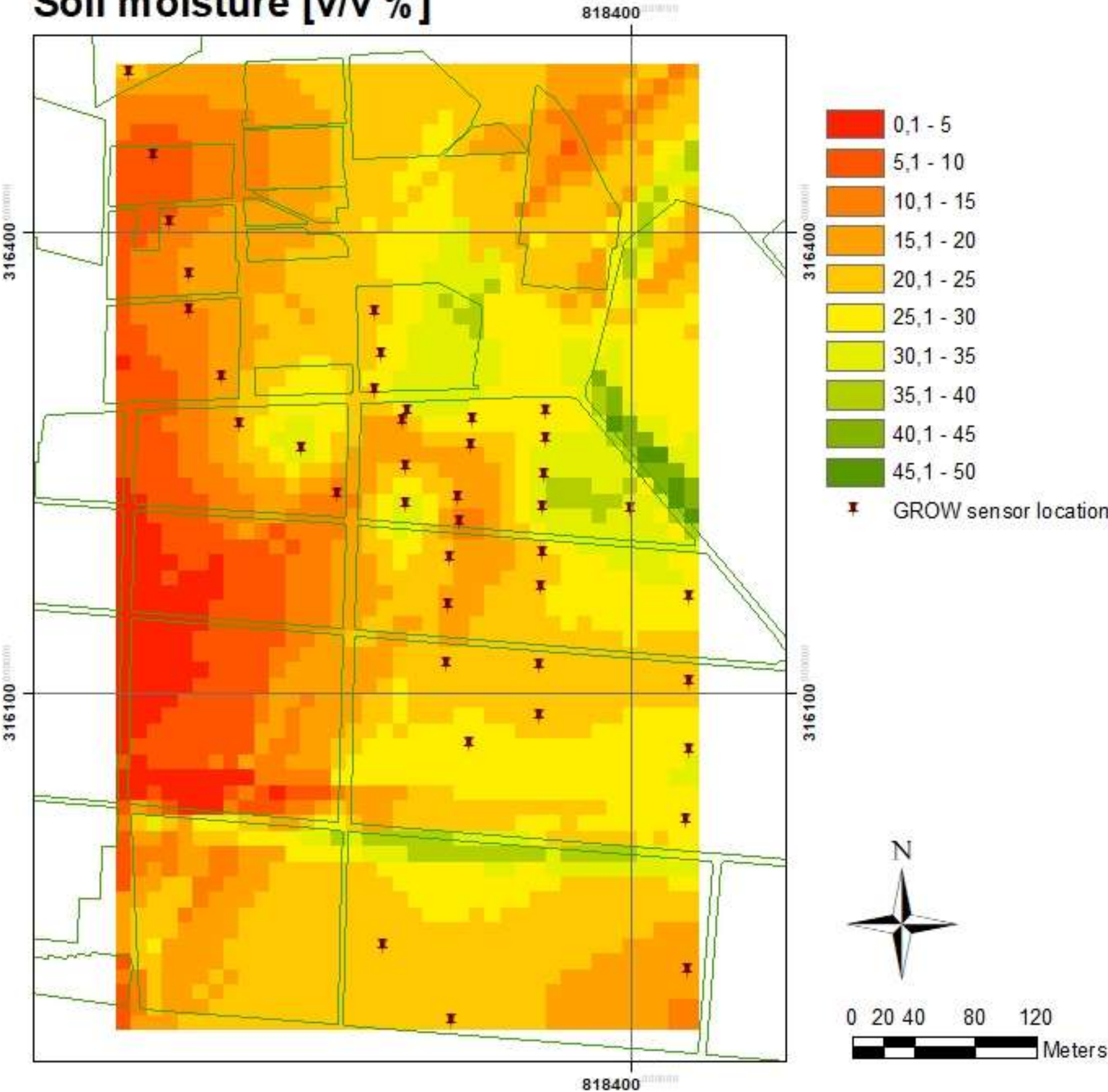
Soil moisture [v/v %]



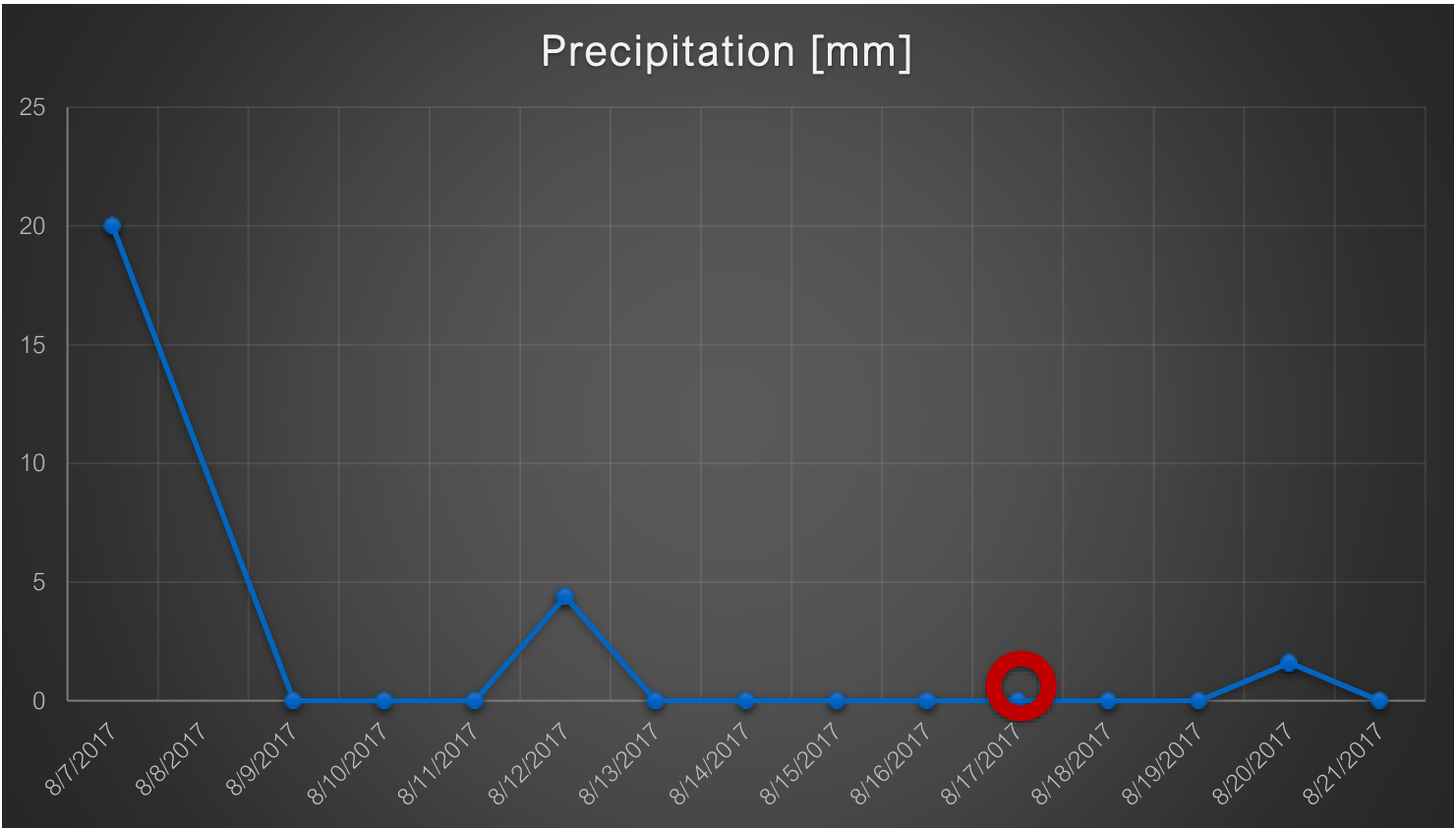
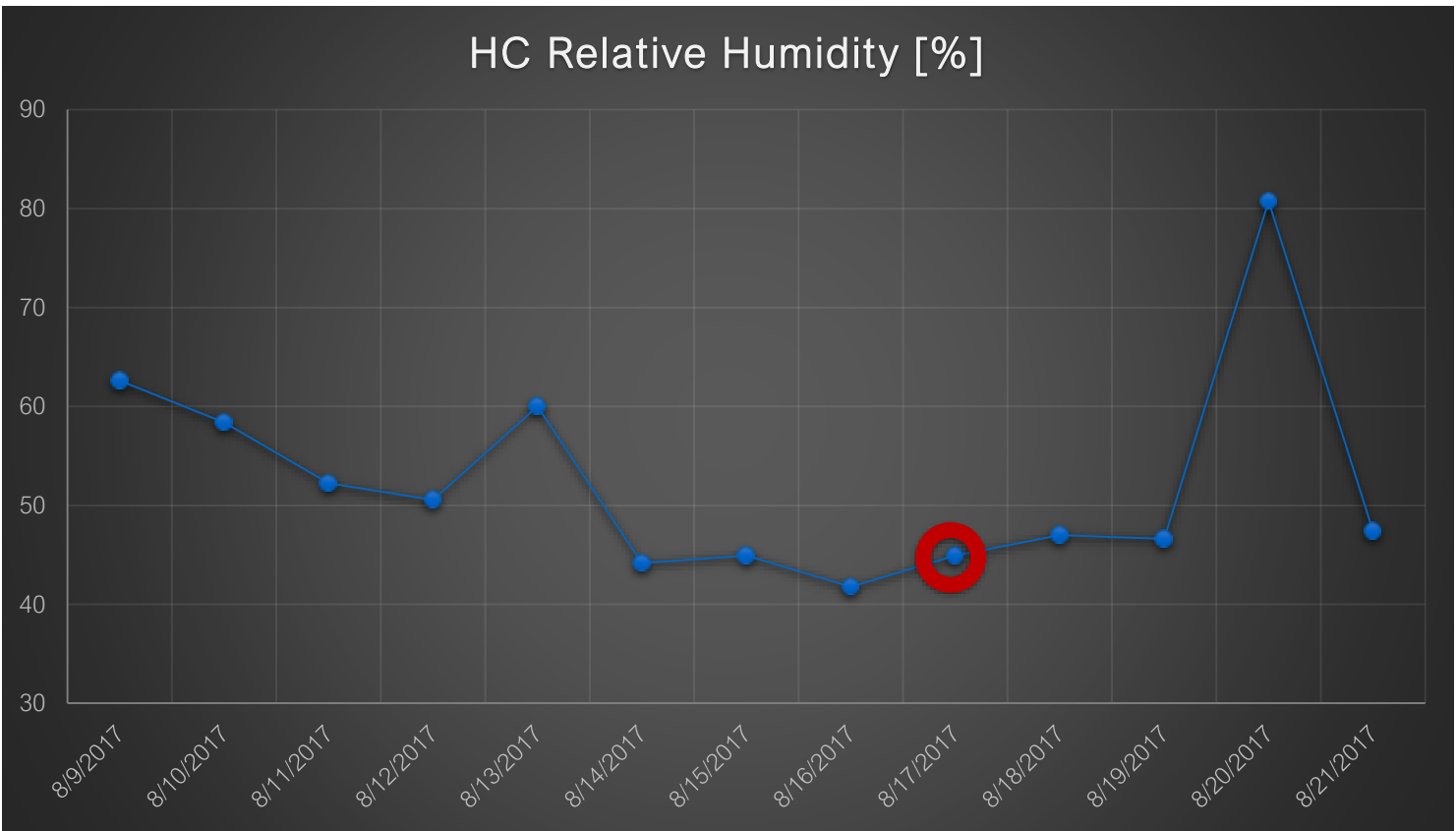
Explanatory data of the weather stations



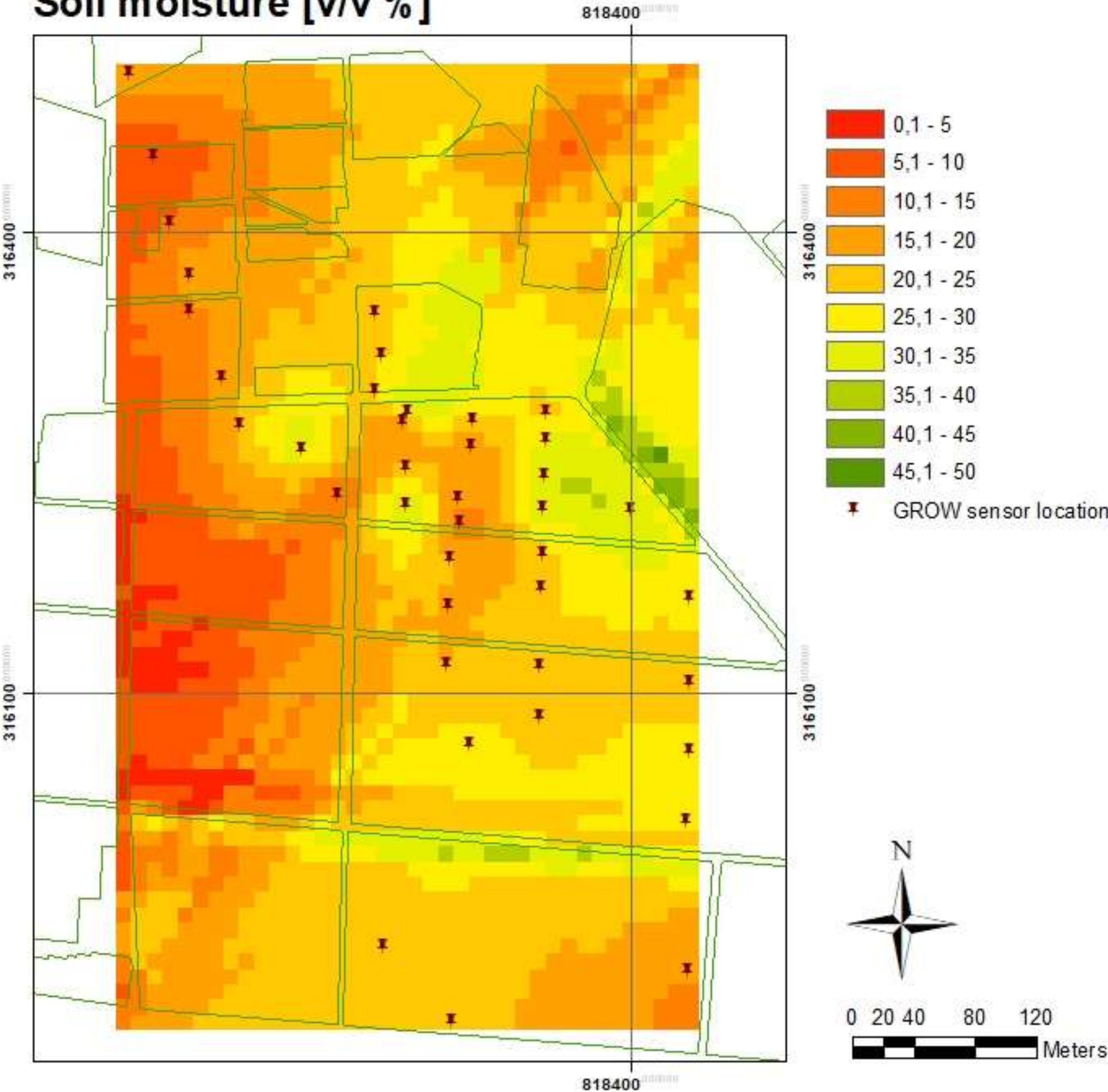
Soil moisture [v/v %]



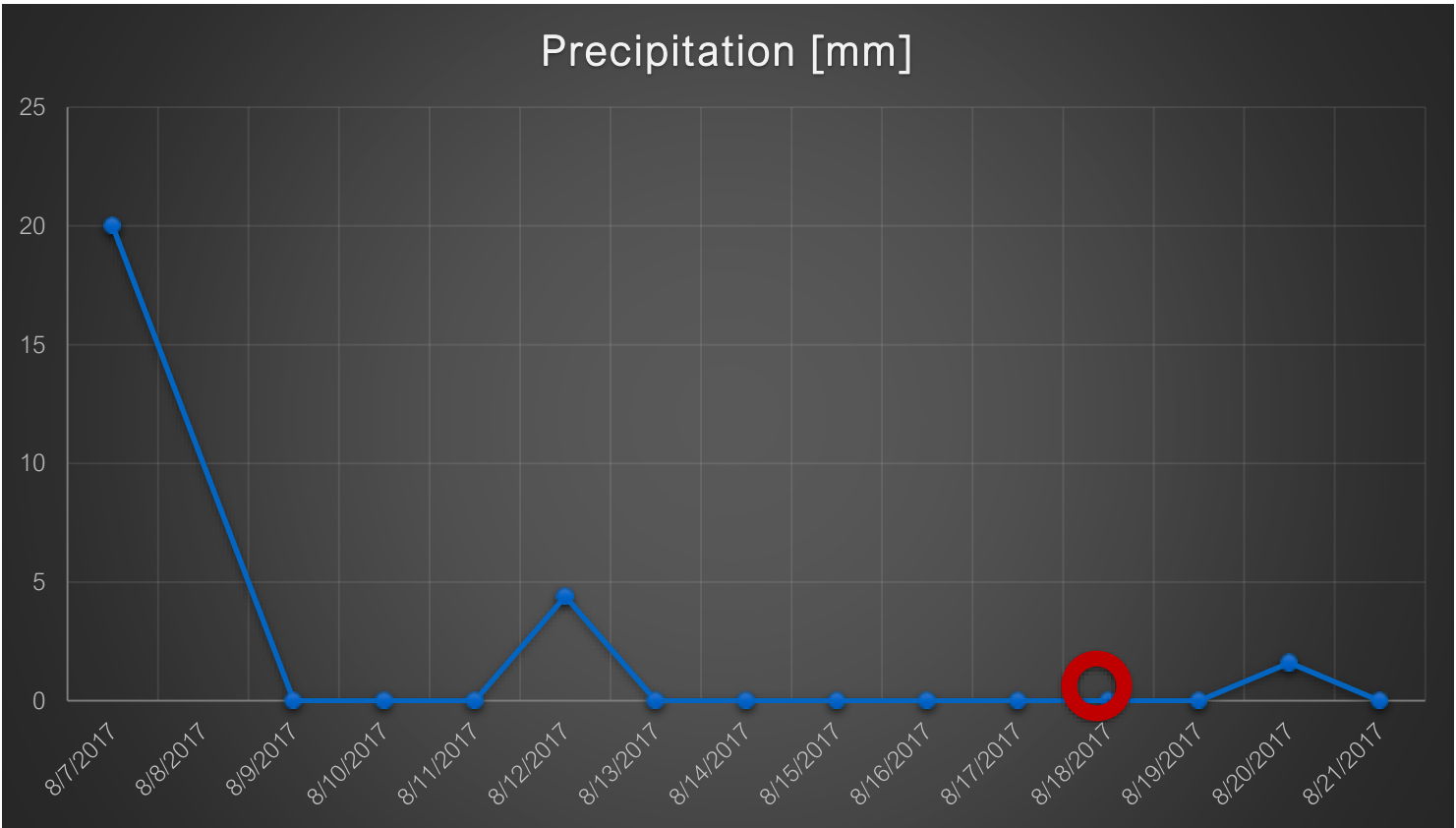
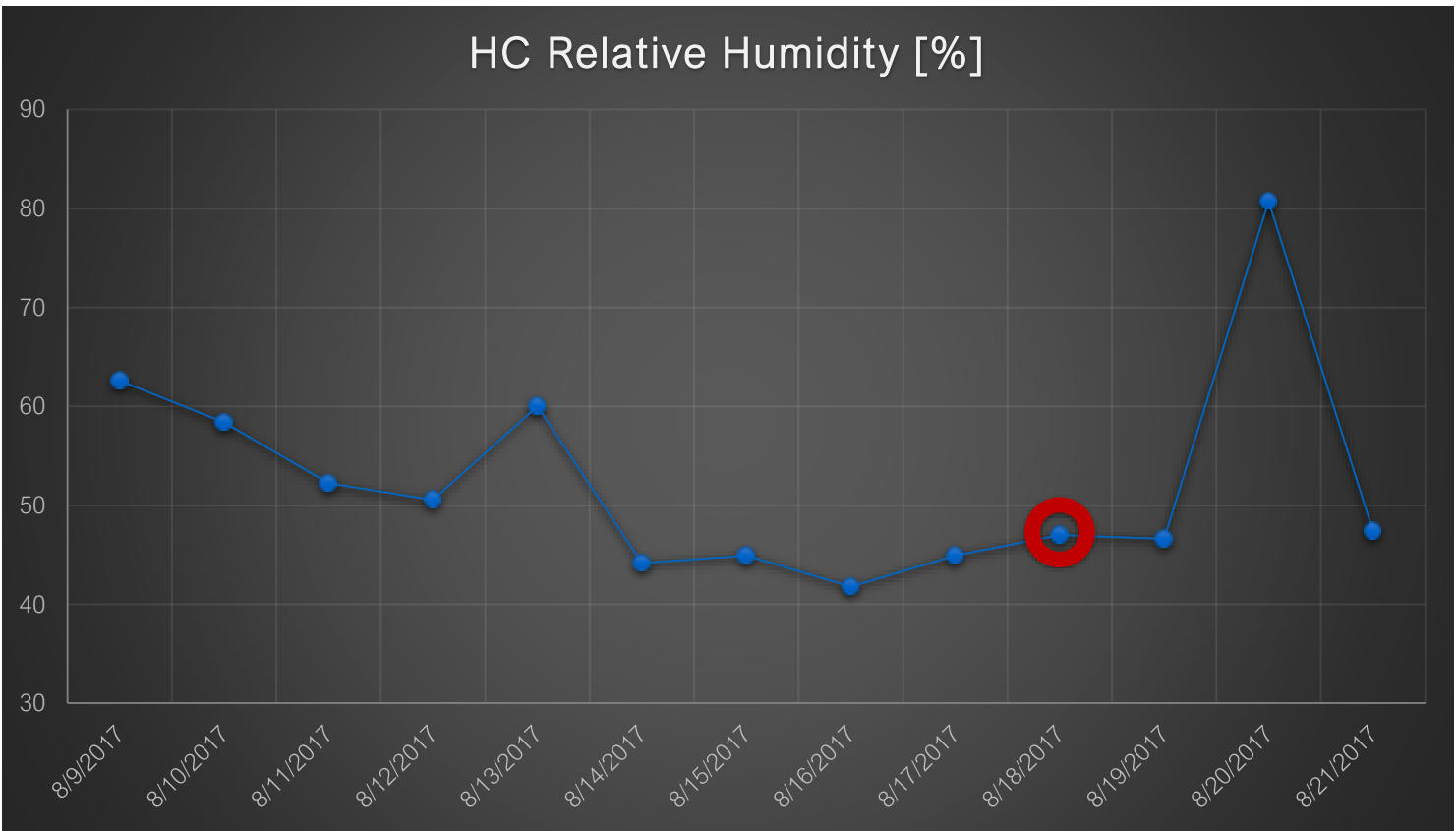
Explanatory data of the weather stations



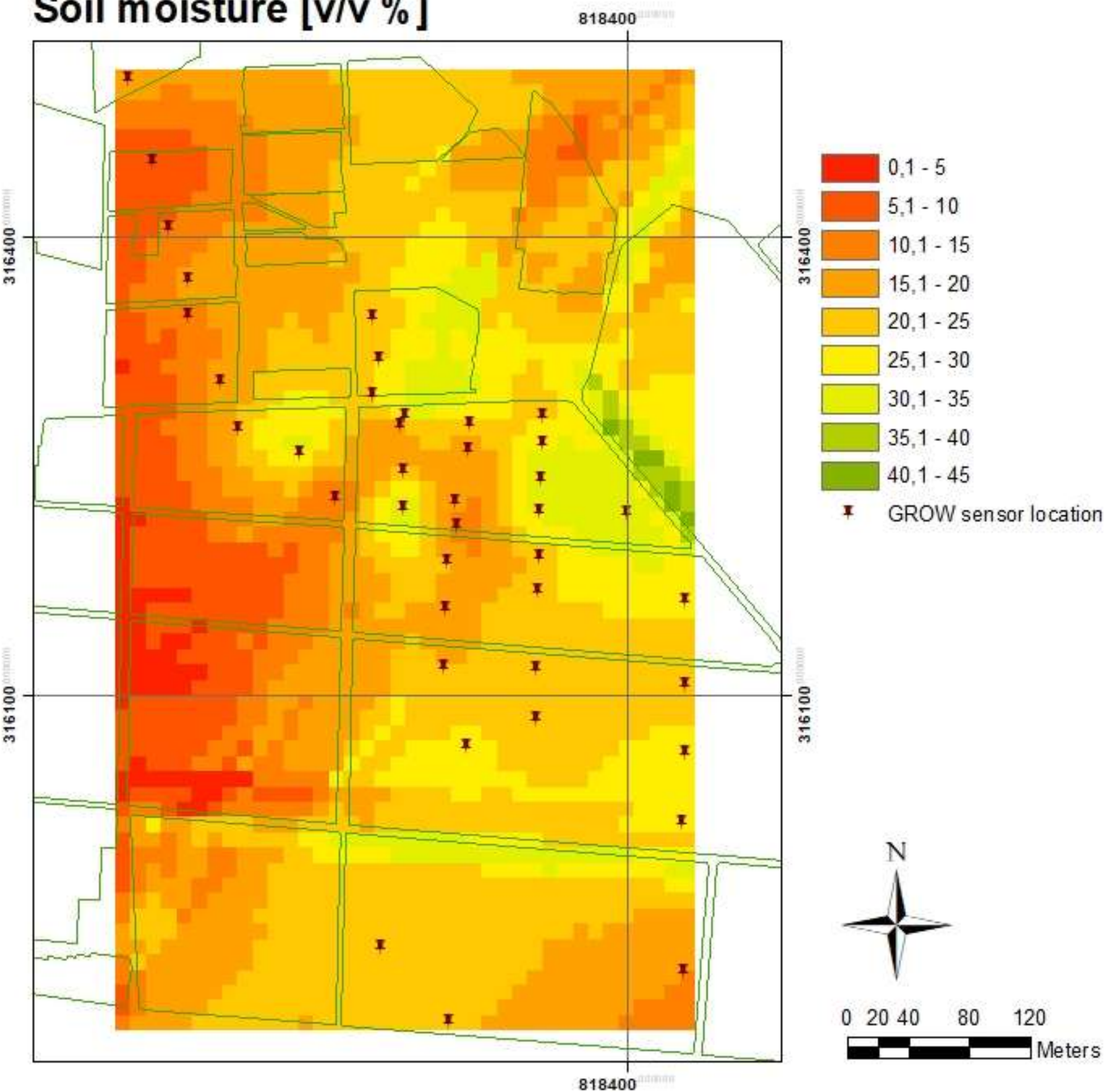
Soil moisture [v/v %]



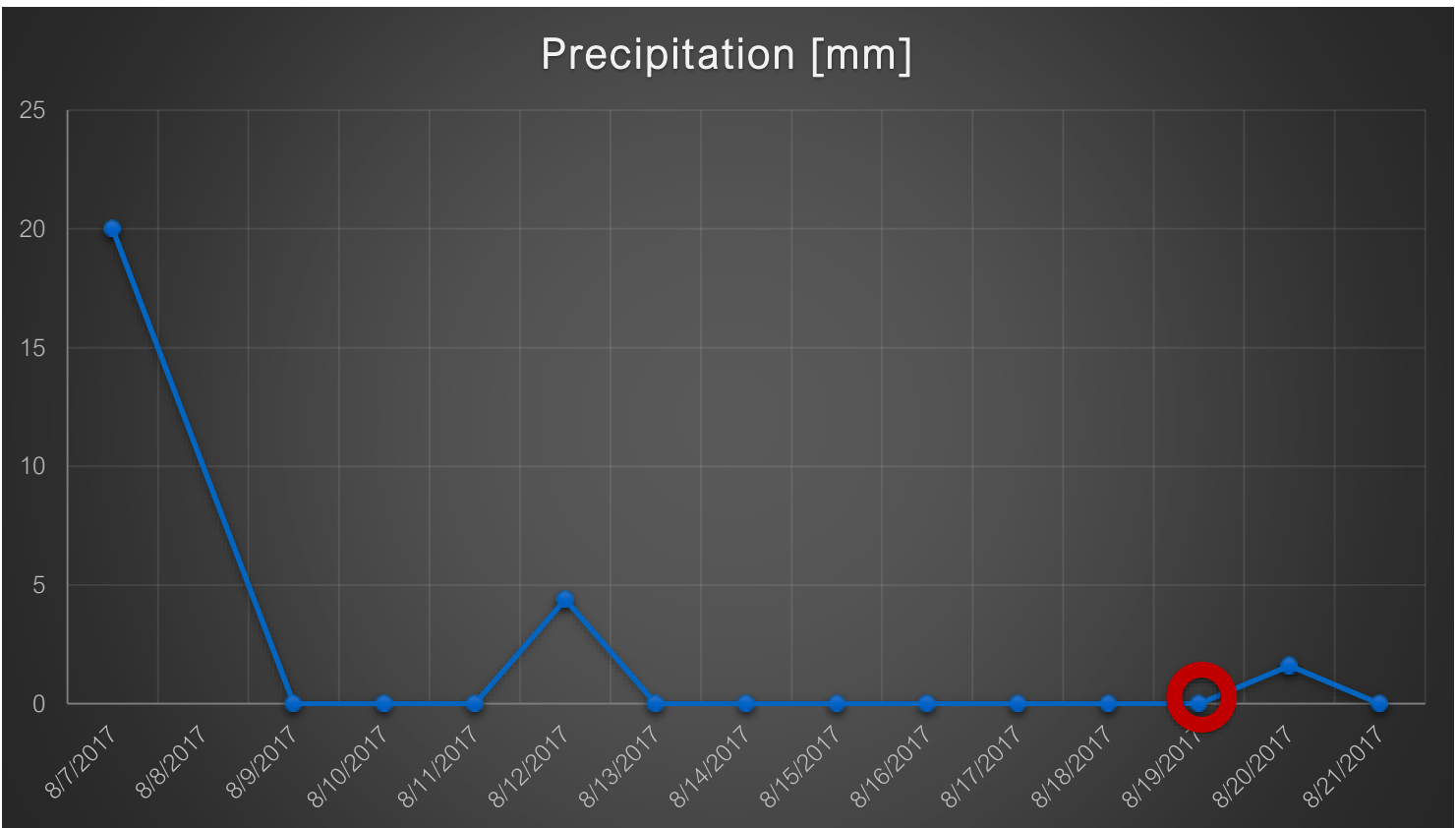
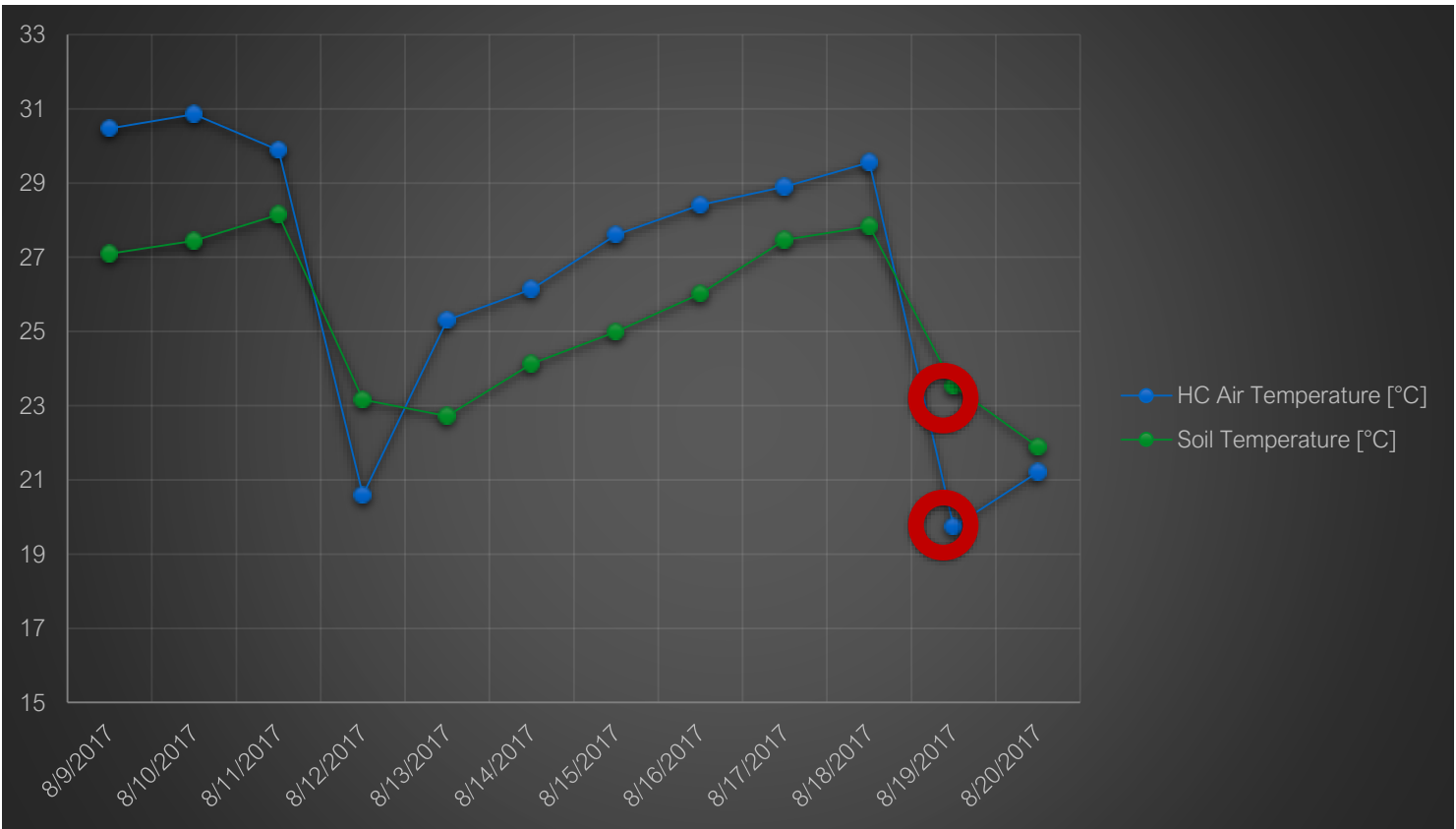
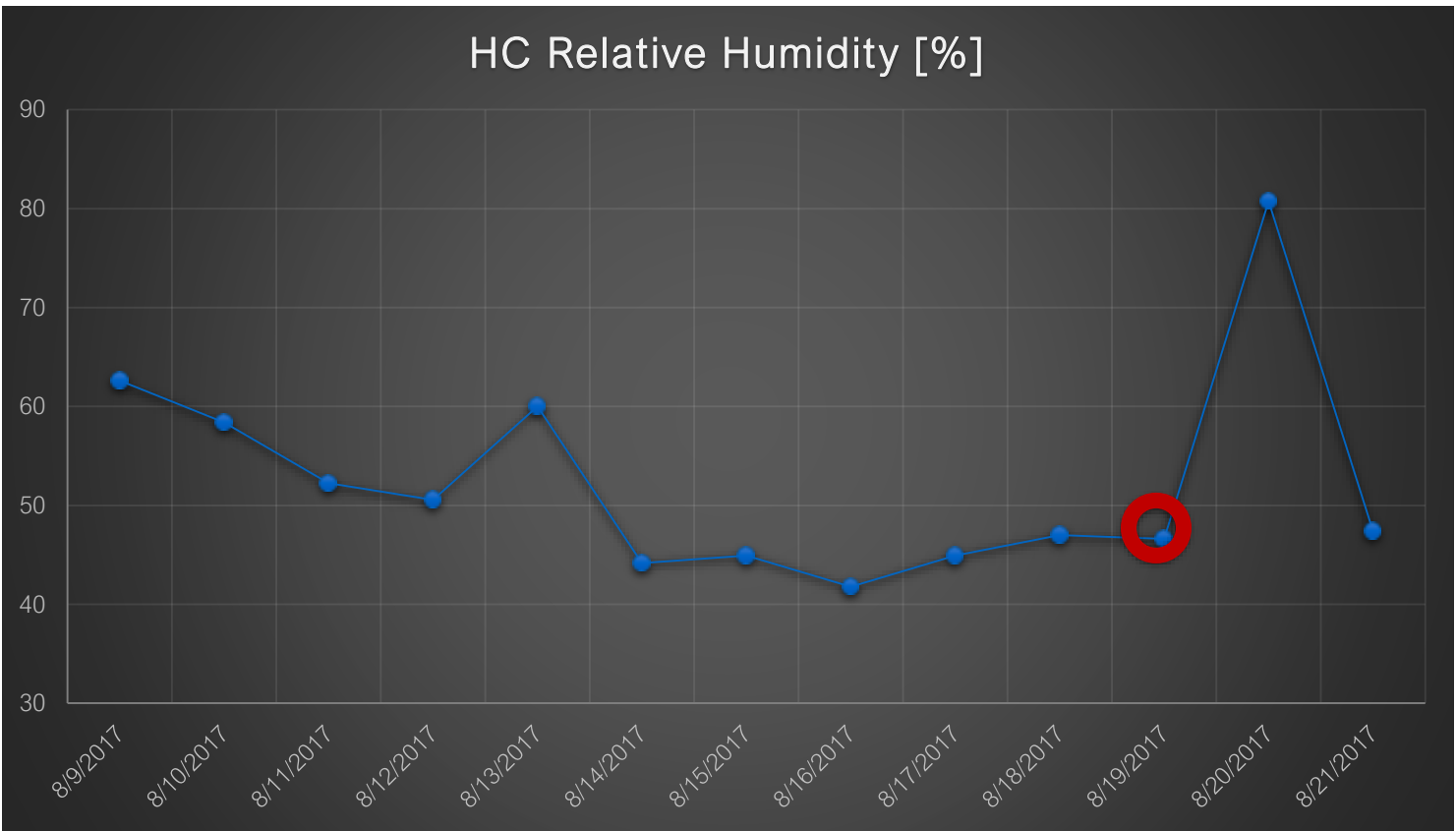
Explanatory data of the weather stations



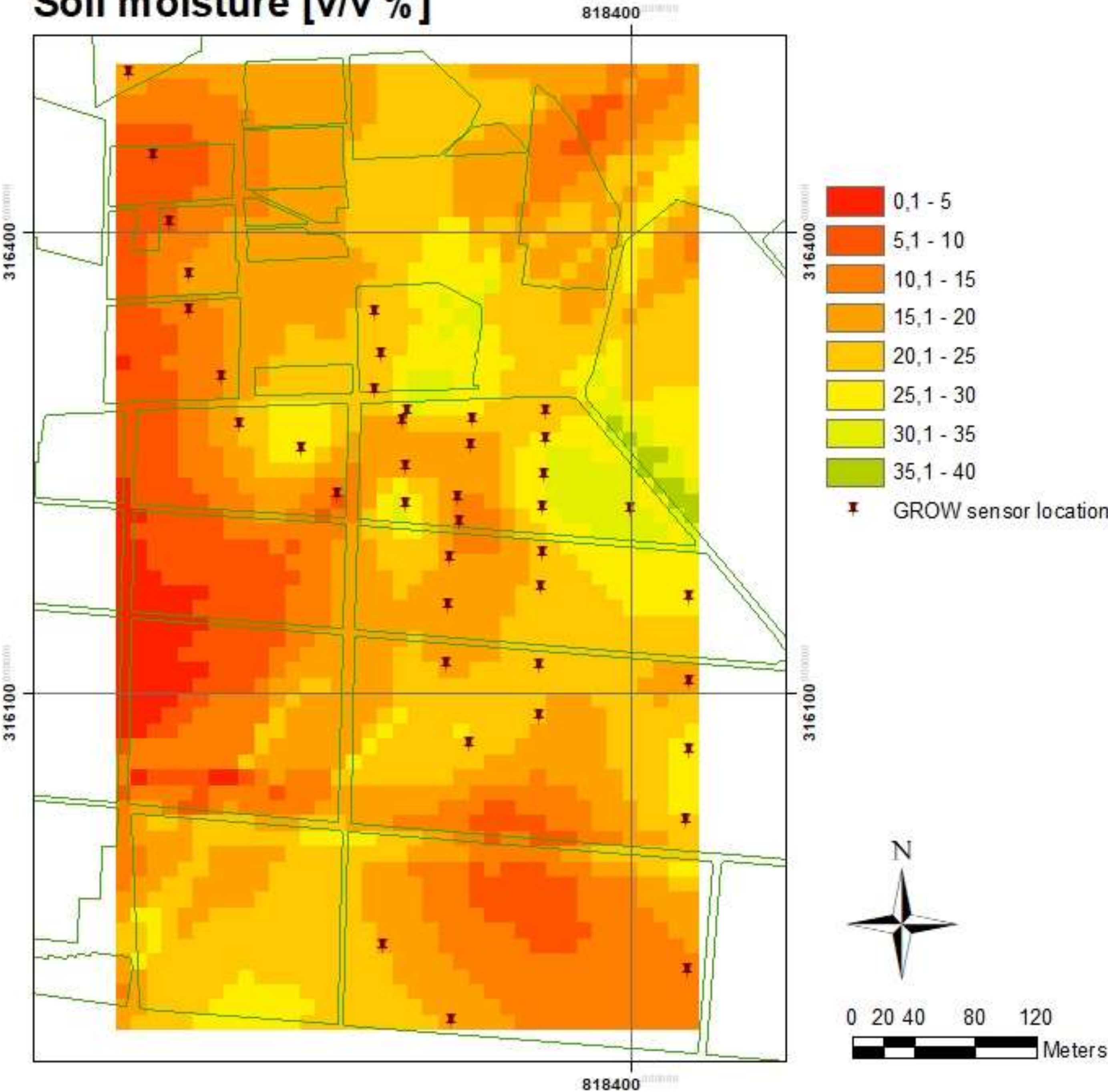
Soil moisture [v/v %]



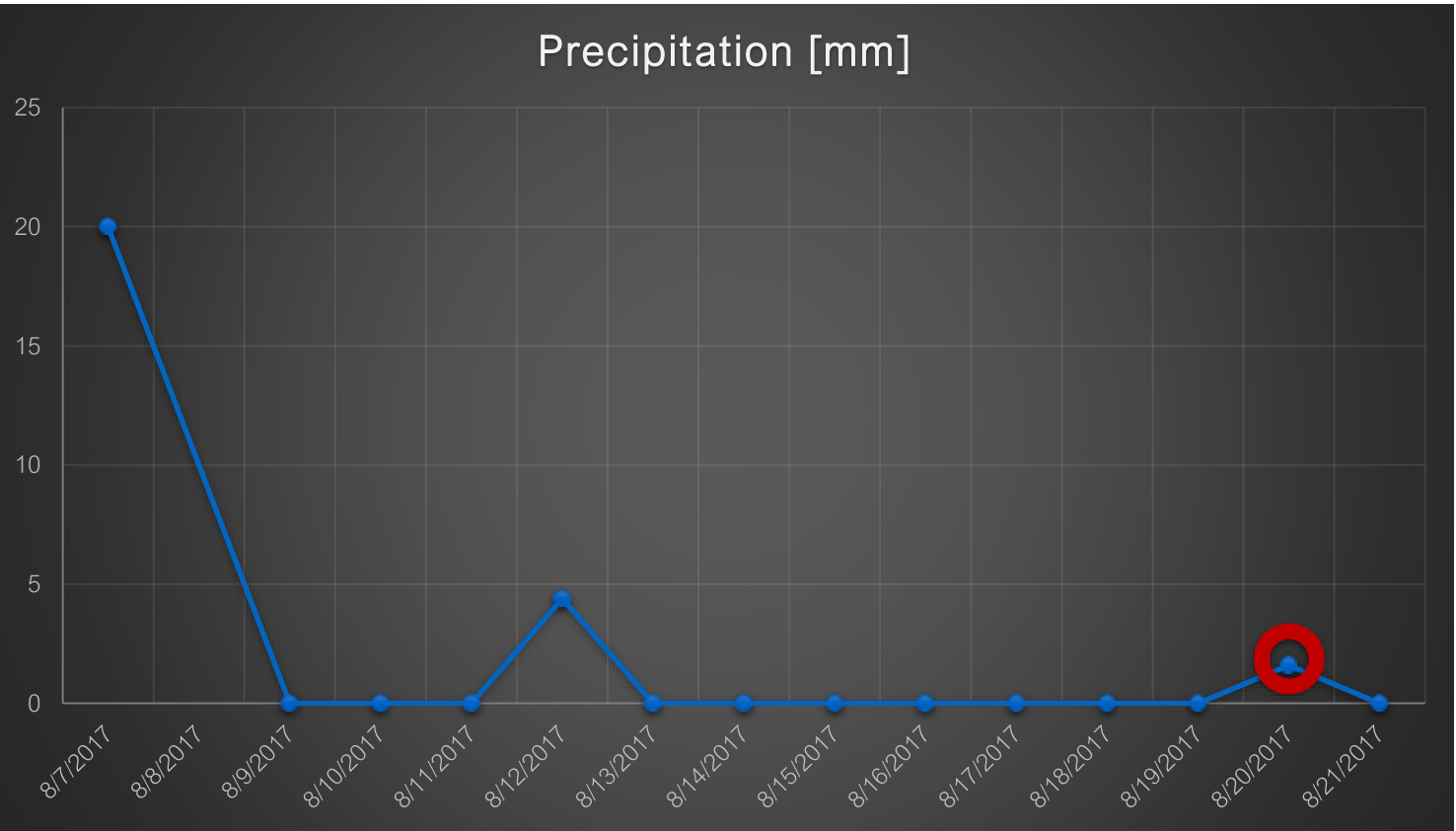
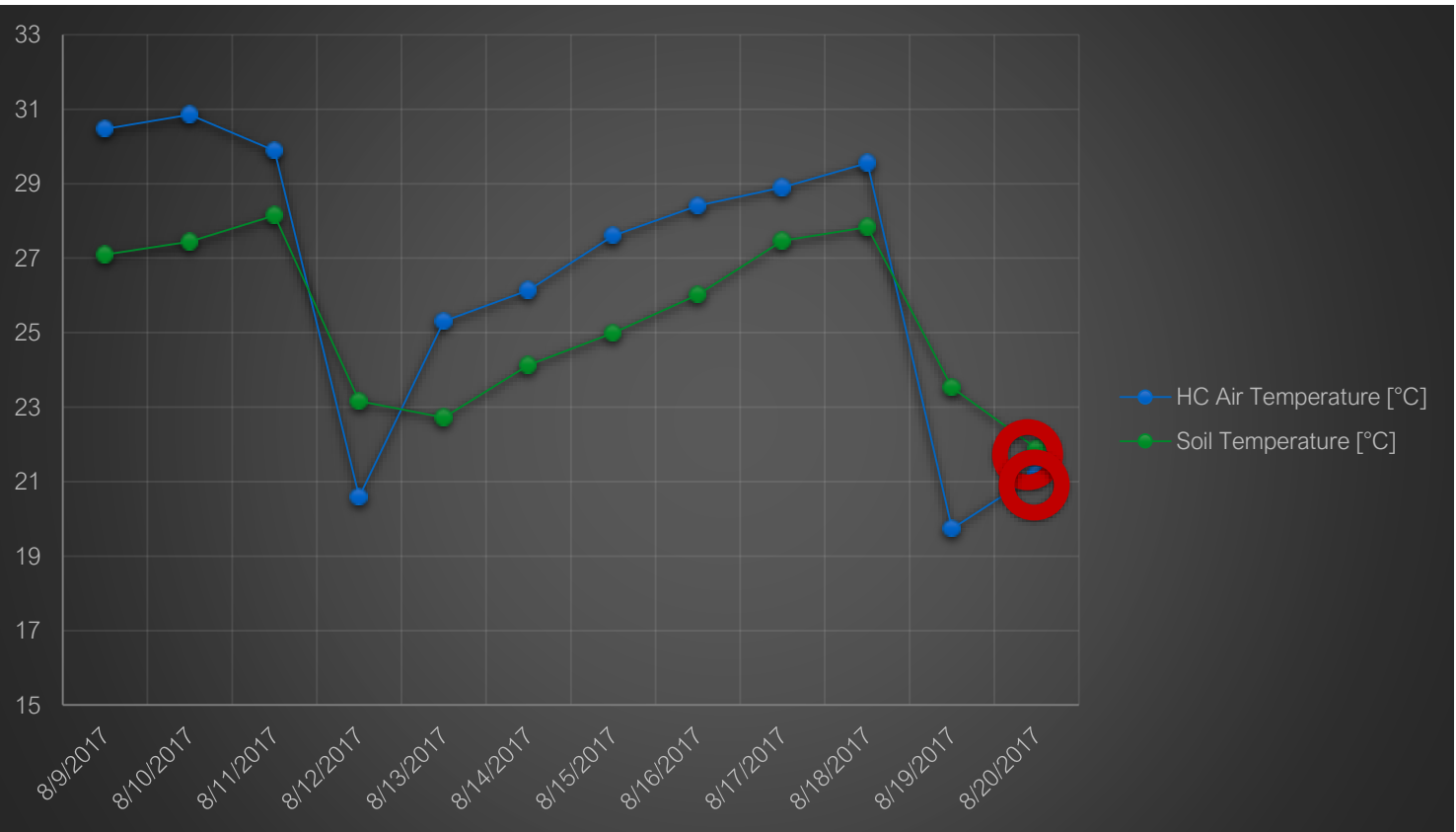
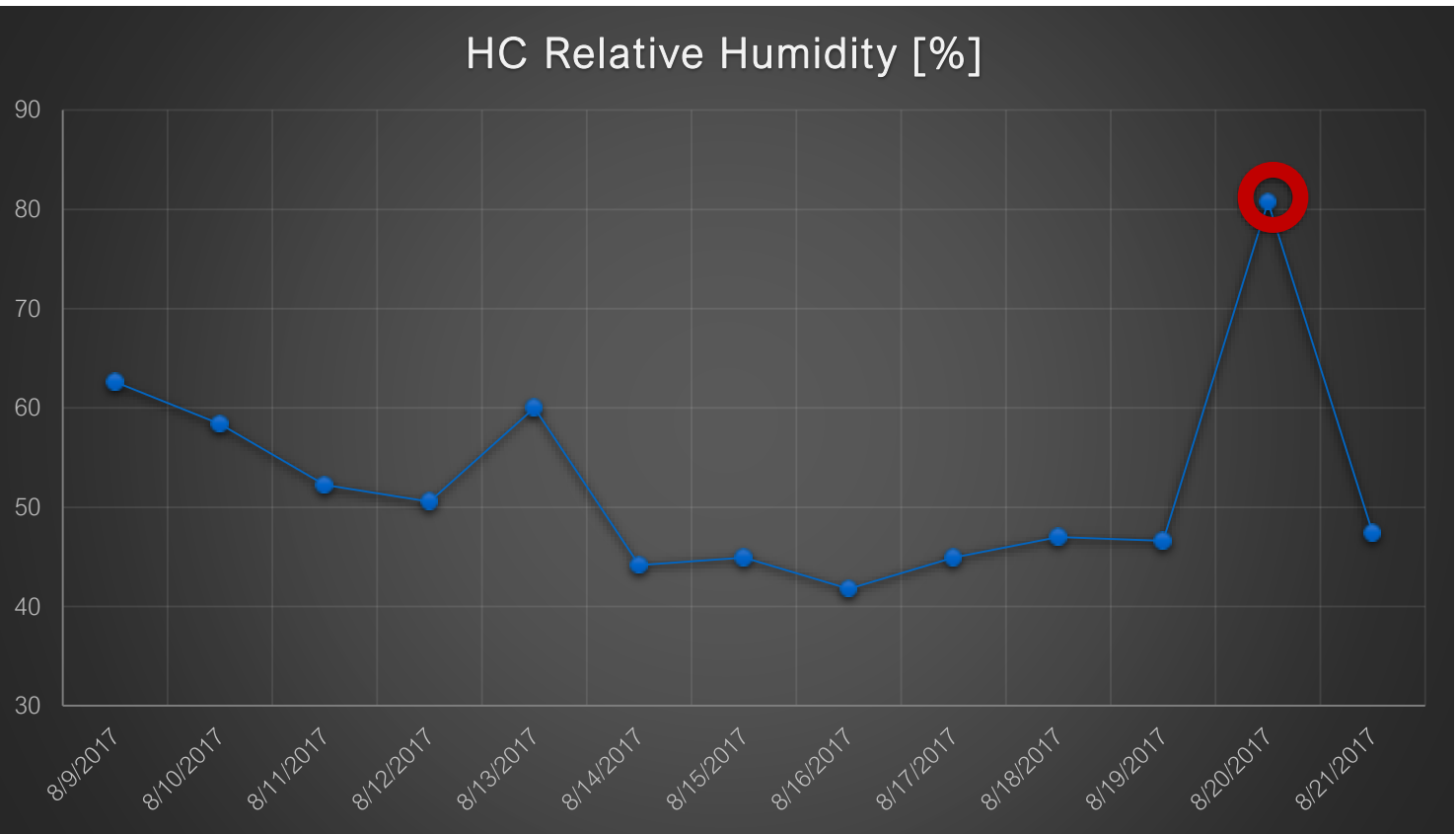
Explanatory data of the weather stations



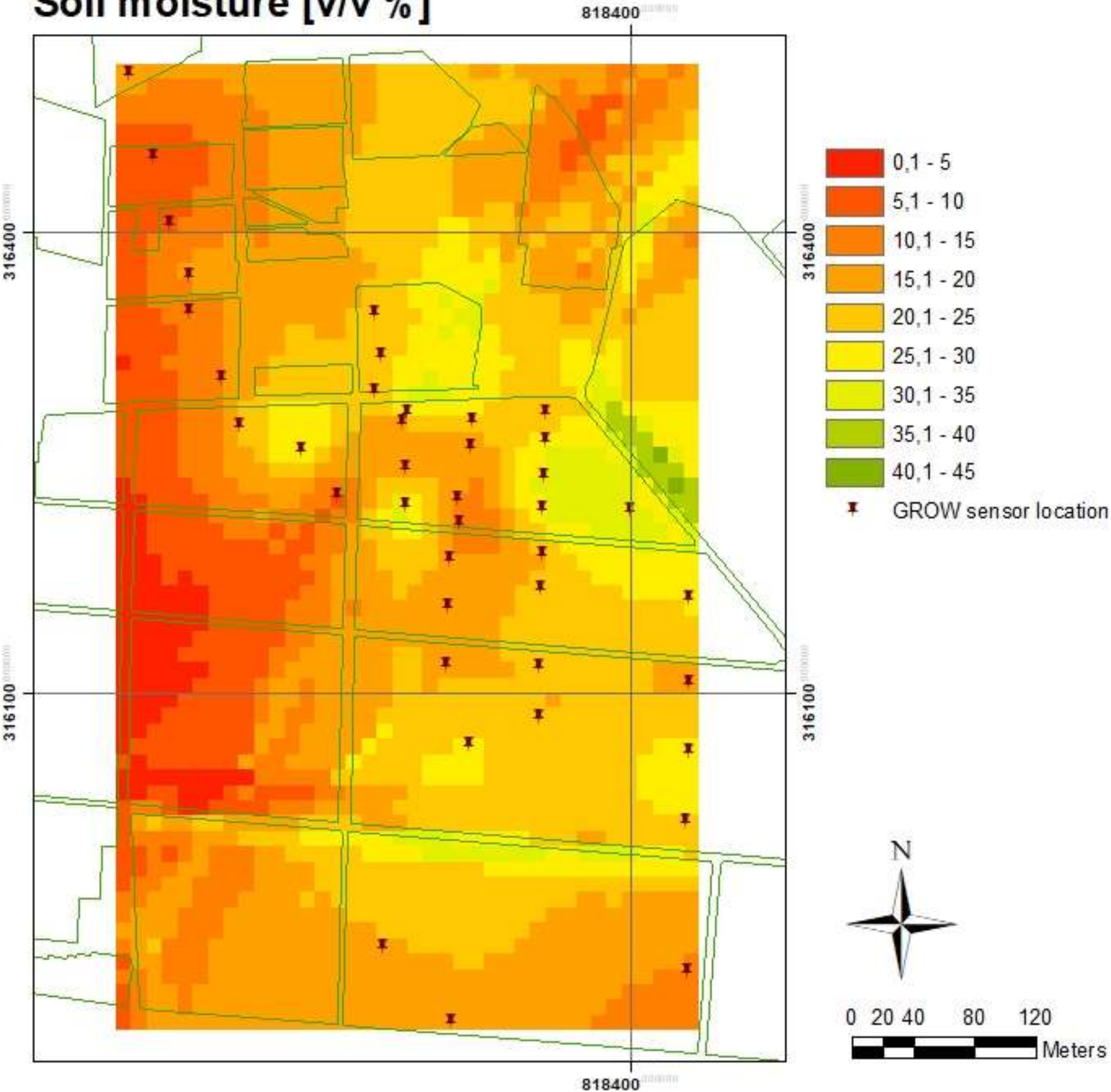
Soil moisture [v/v %]



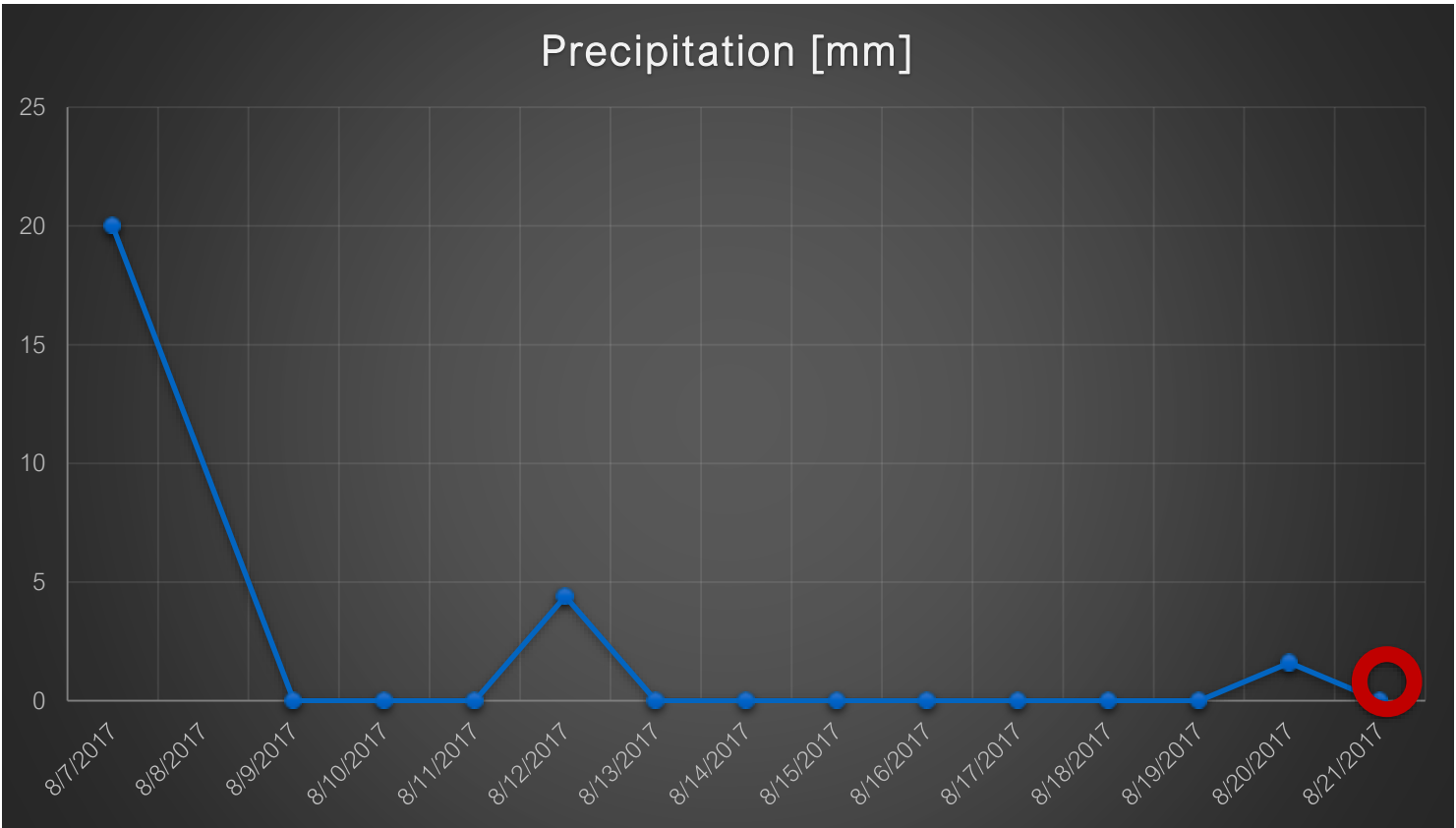
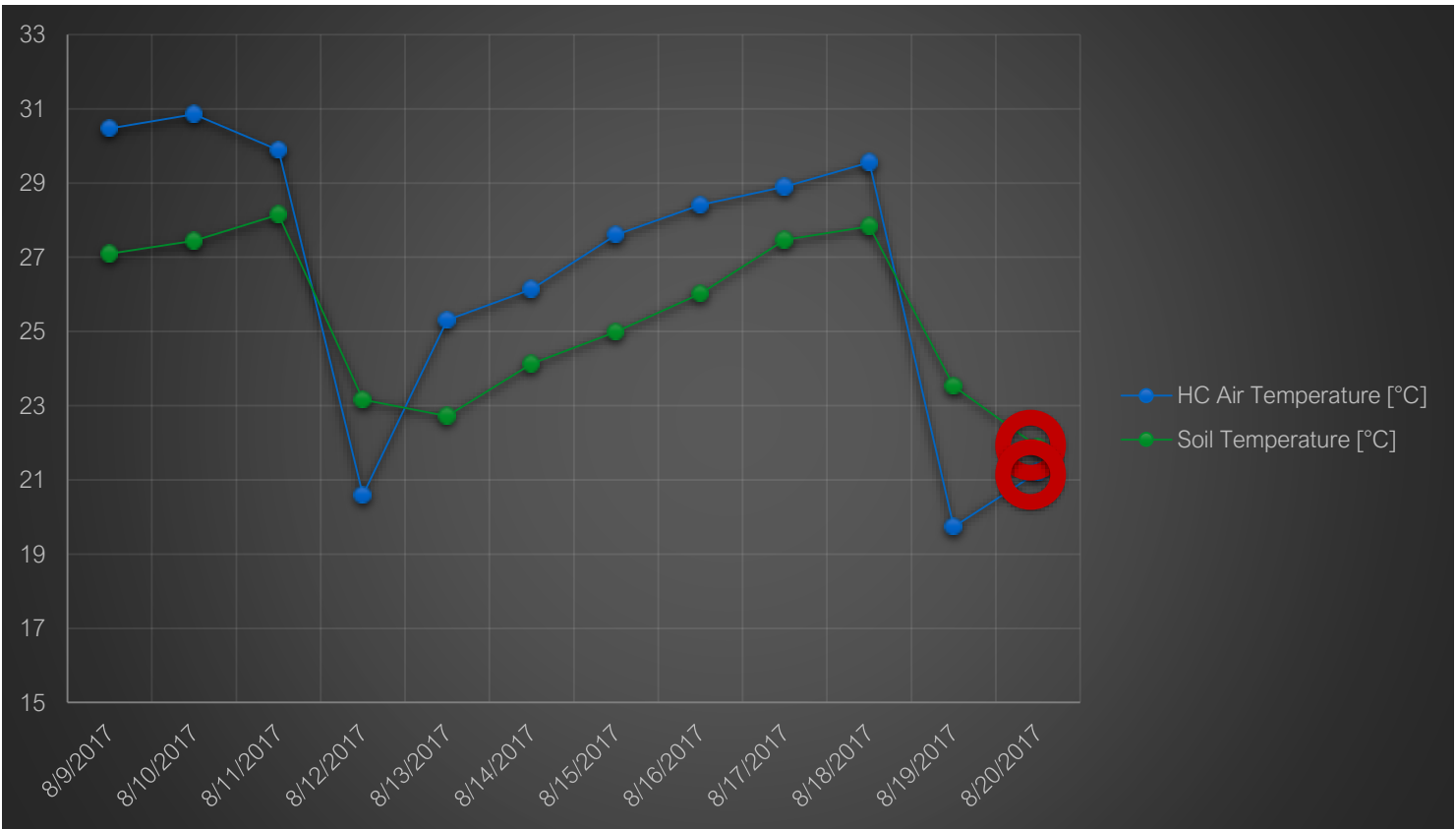
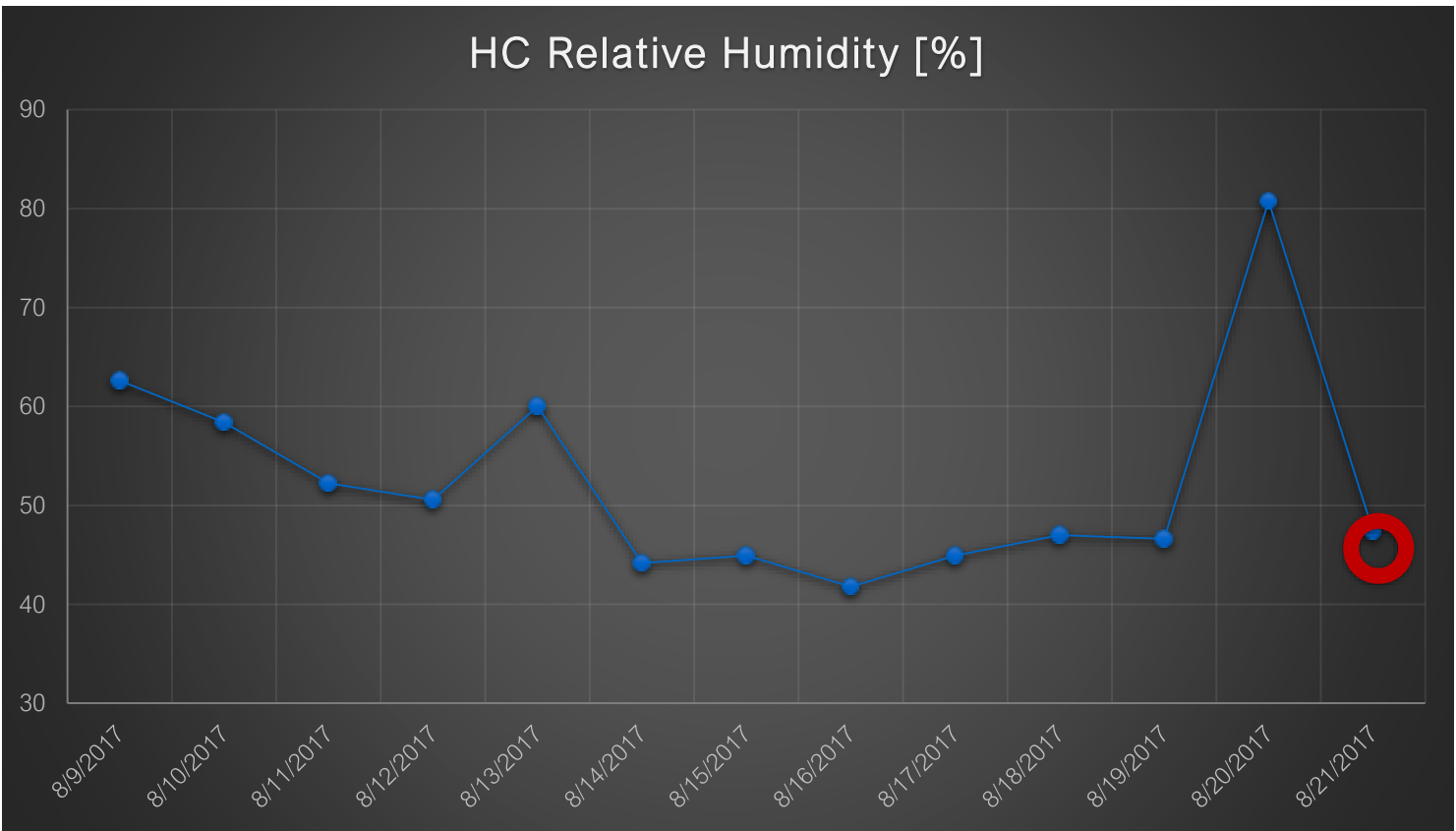
Explanatory data of the weather stations



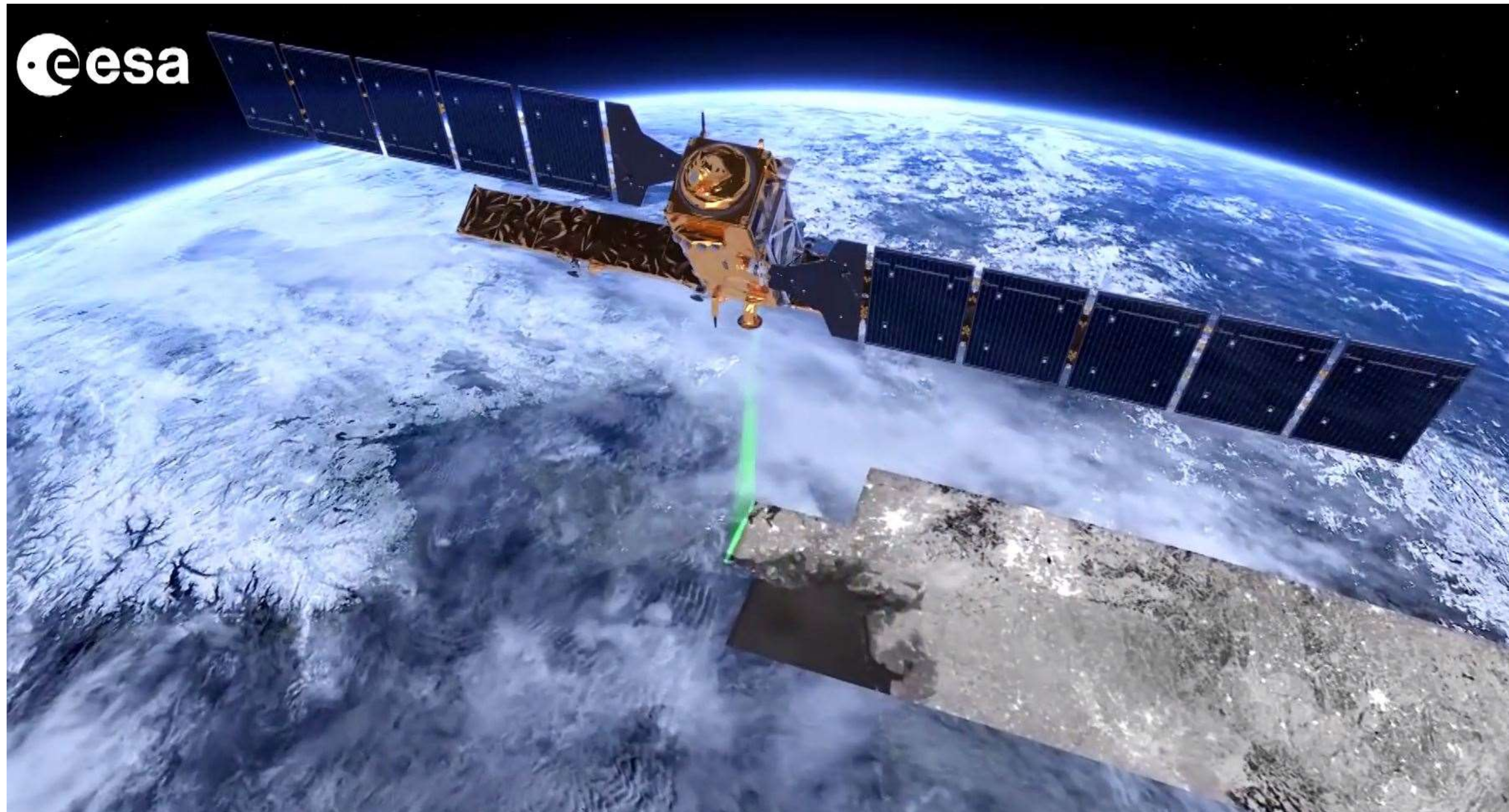
Soil moisture [v/v %]



Explanatory data of the weather stations



SENTINEL 1





Welcome to the Data Hosting Facility of the

International Soil Moisture Network

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we are currently launching a new webpage for the ISMN. During this process some problems might occur because of internal IT changes, and you might not be able to login. Such side effects will only last for few hours, and we are working to cause you as little disturbance as possible. We apologize for any inconvenience, your ISMN Team*

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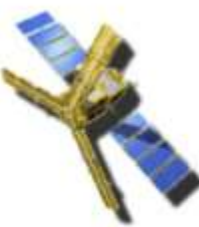


Welcome to the International Soil Moisture Network

The International Soil Moisture Network is an international cooperation to establish and maintain a global in-situ soil moisture database. This database is an essential means of the geoscientific community for validating and improving global satellite observations and land surface models.

Soil moisture, which is the water stored in the upper soil layer, is a crucial parameter for a large number of applications, including numerical weather prediction, flood forecasting, agricultural drought assessment, water resources management, greenhouse gas accounting, civil protection, and epidemiological modeling of water borne diseases. Therefore, the societal benefits of the International Soil Moisture Network are expected to be large.

This international initiative is coordinated by the Global Energy and Water Exchanges Project (GEWEX) in cooperation with the Group of Earth Observation (GEO) and the Committee on Earth Observation Satellites (CEOS). The International Soil Moisture Network has been made possible through the voluntary contributions of scientists and networks from around the world. The International Soil Moisture Network is operated in cooperation with the Global Soil Moisture Databank of the Rutgers University.



SMOS satellite



SMAP satellite

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select data from certain networks

- ☒ Africa
- ☒ Asia
- ☒ Australia
- ☒ Europe
- ☒ North America
- ☒ South America

in a certain time interval

from to

1950

☐ Hide Stations that have no data in time interval.

in a certain area

	Latitude	Longitude
south-west	-90	-180
north-east	90	180

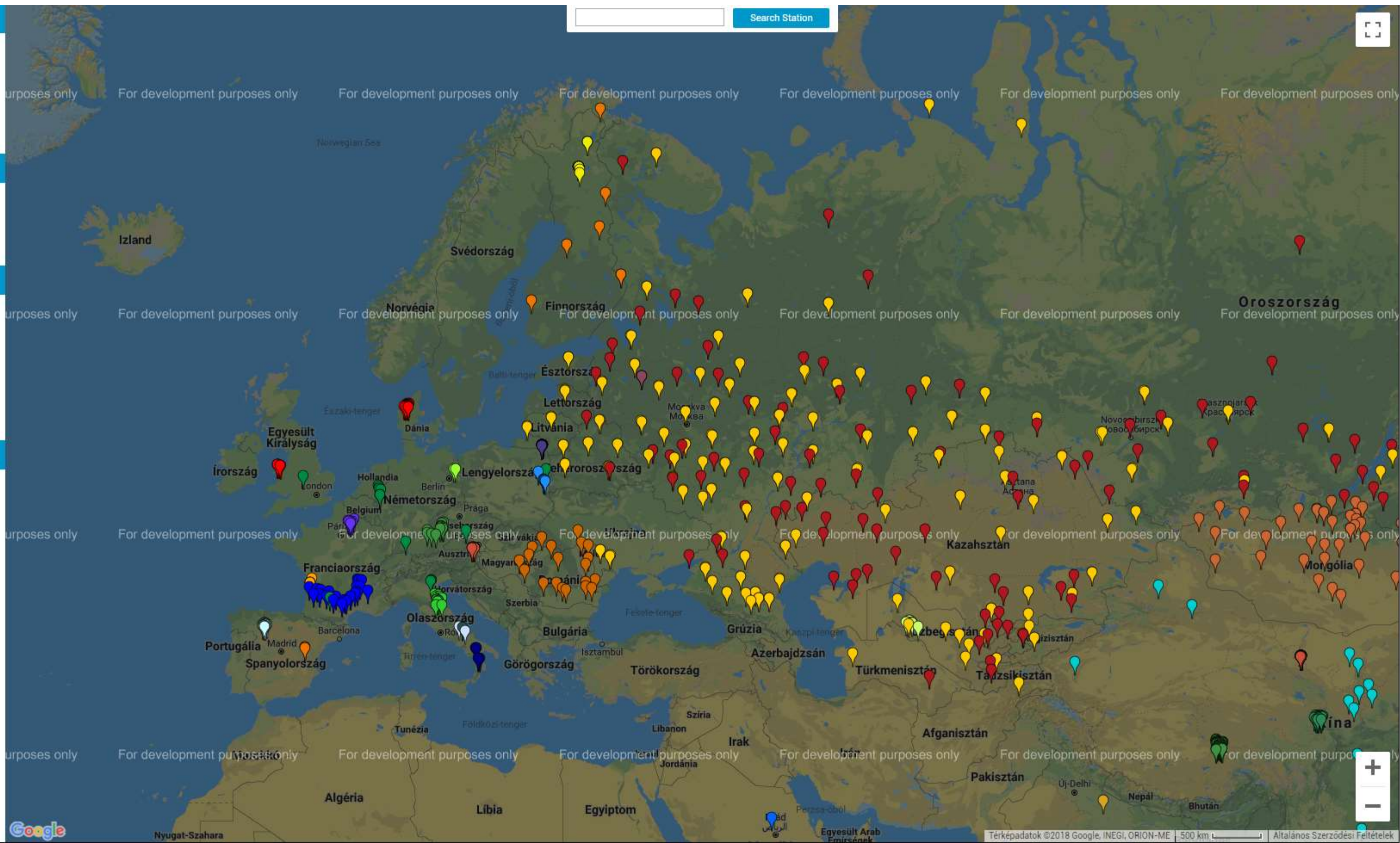
Select from input

Clear

To select an area on the map press **SHIFT** and drag a rectangle.

and log in to download the selected data

Reset all





30X30KM

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