

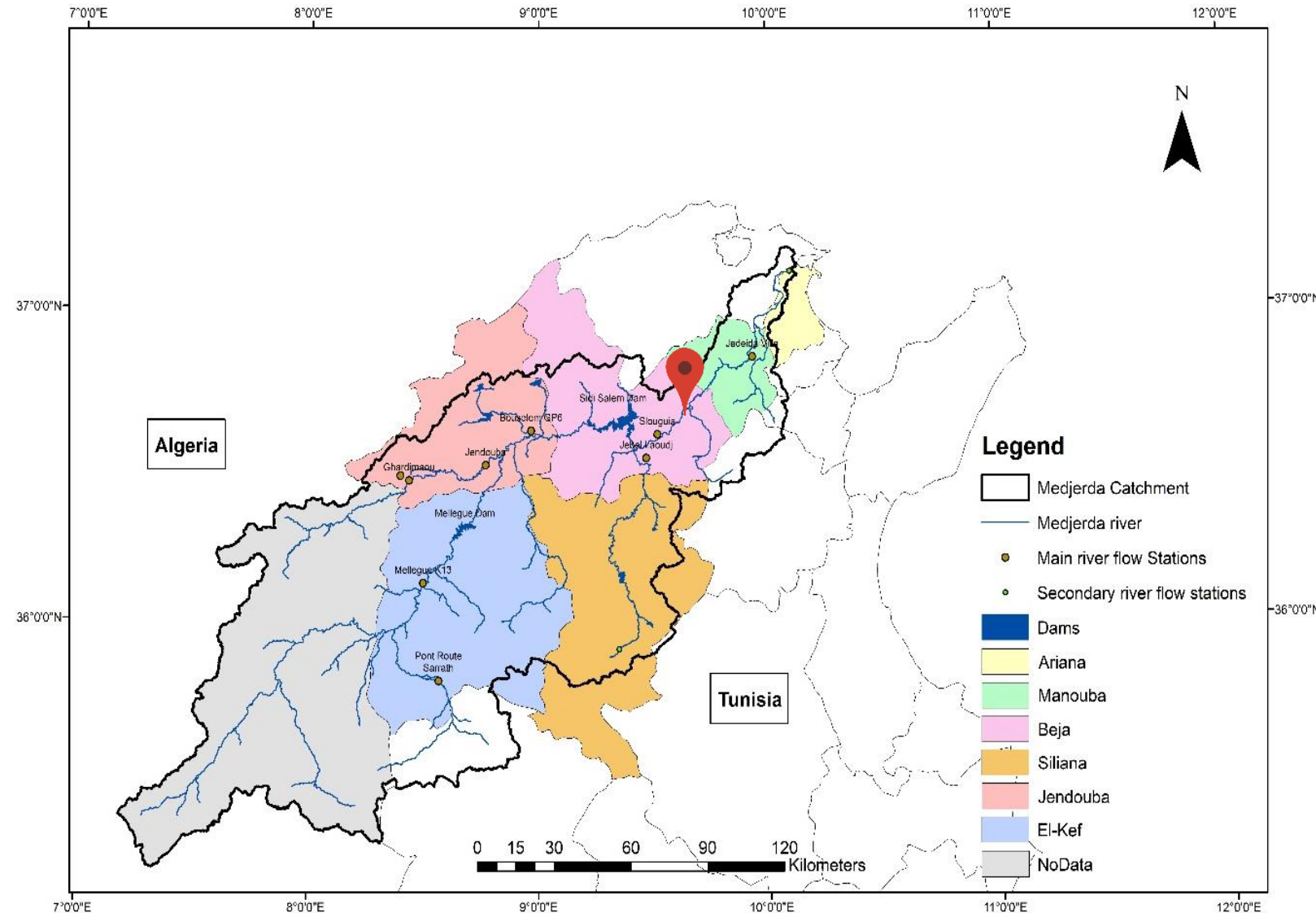
Together4Water: Testing a Citizen Science water monitoring project in Tunisia

R. Fehri, K. Mens, S. Khlifi, M. Vanclooster

Context

- The most important River basin in Tunisia
- Socio-Economic importance (Agriculture is the main activity)
- Suffers from lack of consistent water data.
- A Citizen Science approach to be tested in order to reinforce the existing databases.

➔ What is the potential intrinsic value of water information data collected using Citizen Science (CS)-based approaches in Tunisia?



The Together4Water platform

[Accueil](#)[L'initiative](#)[La technologie](#)[Contactez-nous](#)

Together 4Water

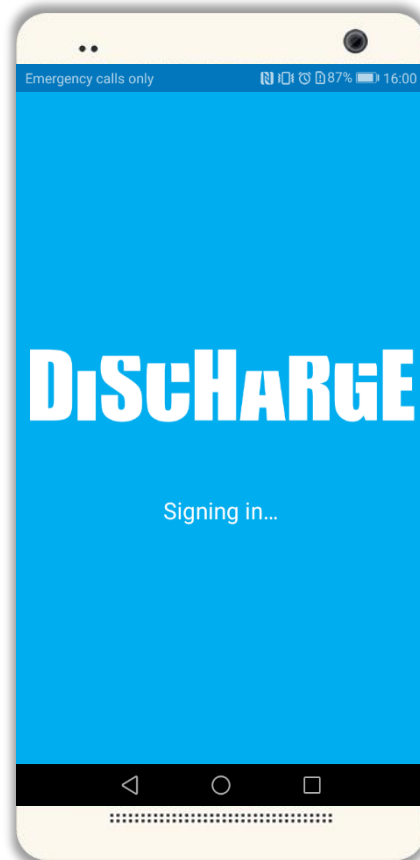
**Smart Citizens
for Water Management**



Vous souhaitez discuter ?



Citizen Science tools: Smart monitoring



(Lüthi et al., 2014)



(rainlog.org, 2016)



(Velda, 2018)

Citizen Science step-by-step



Discharge app: Sites creation



Discharge app: Sites creation



Discharge app: Sites creation

Set up Cross-section & Markers

INPUT

PREVIEW

Profile *

Required

2D

3D

Markers *

Required

Shoreline *

Required

Watercolumn

Profile offset

CANCEL

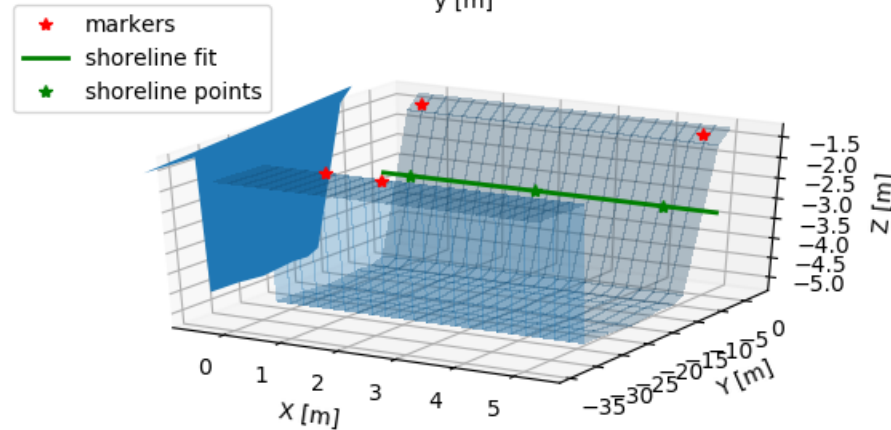
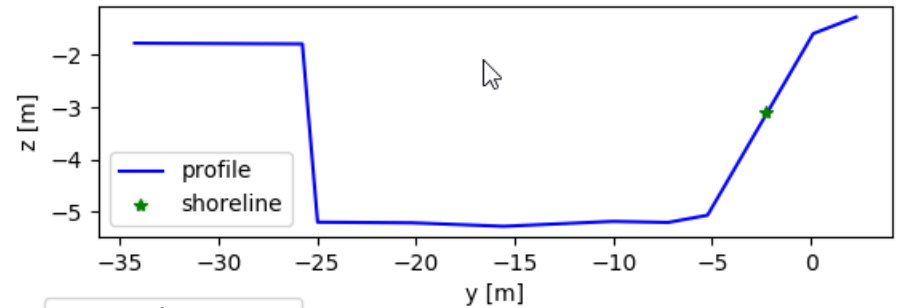
PROCESS

Discharge app: Sites creation

Set up Cross-section & Markers

INPUT

PREVIEW



BACK

CANCEL

FINISH

Discharge app: Sites creation

Manning-Strickler Roughness Coefficients

For stationary, regular discharges after expression of:

$$v = k_{st} * r_{hy}^{2/3} * I_E^{1/2}$$

v =bulk velocity, r_{hy} =hydraulic radius, I_E =hydraulic gradient line.

Roughness coefficients k_{st} :

$k_{st}[m^{1/3}/s]$

Natural streams

River with "solid" bed, without irregularities	40
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River bed with plants stuff	30-35
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Riverbed with rocks and irregularities	30
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Riverbed with a lot of mobilized rocks	28
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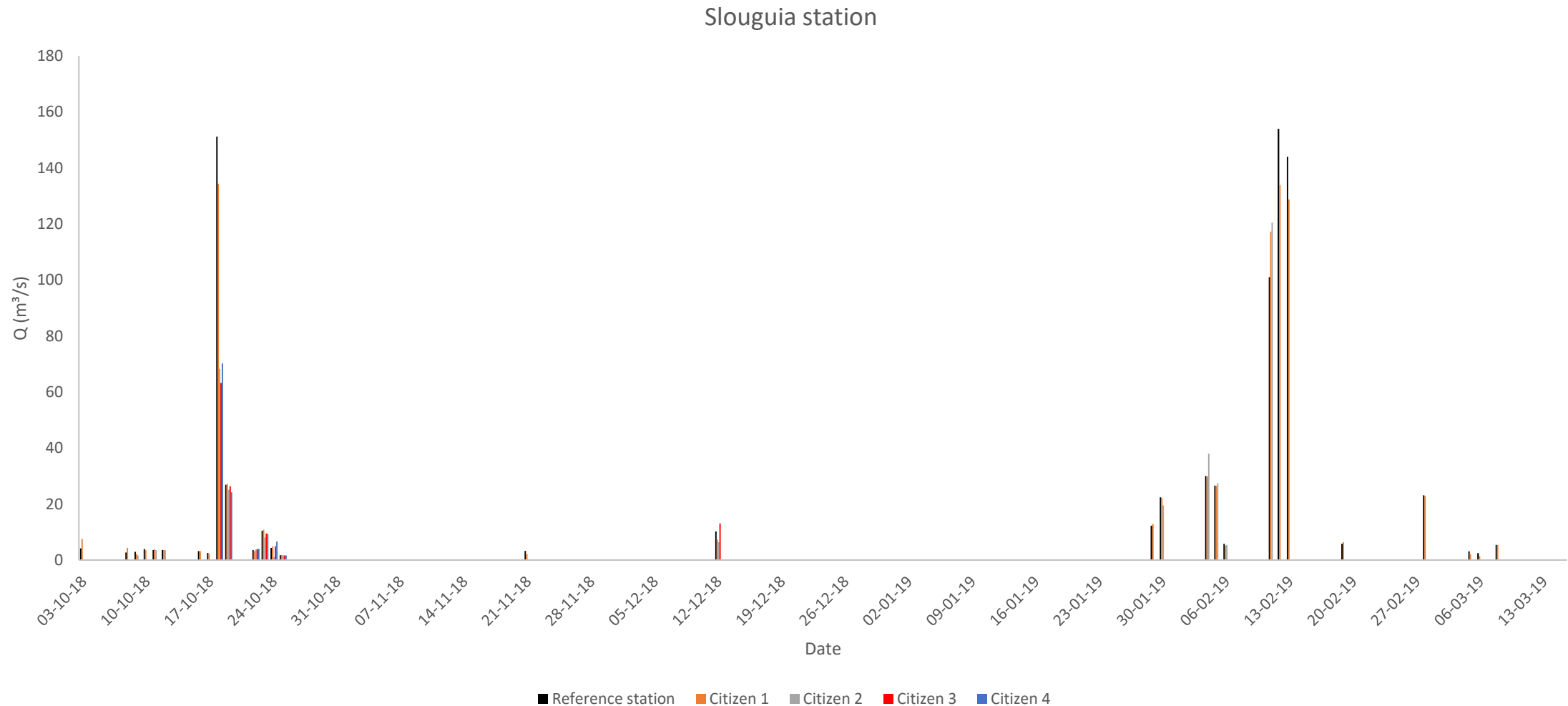
Wild river with rocks, size of a head	20-28
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Earth channels

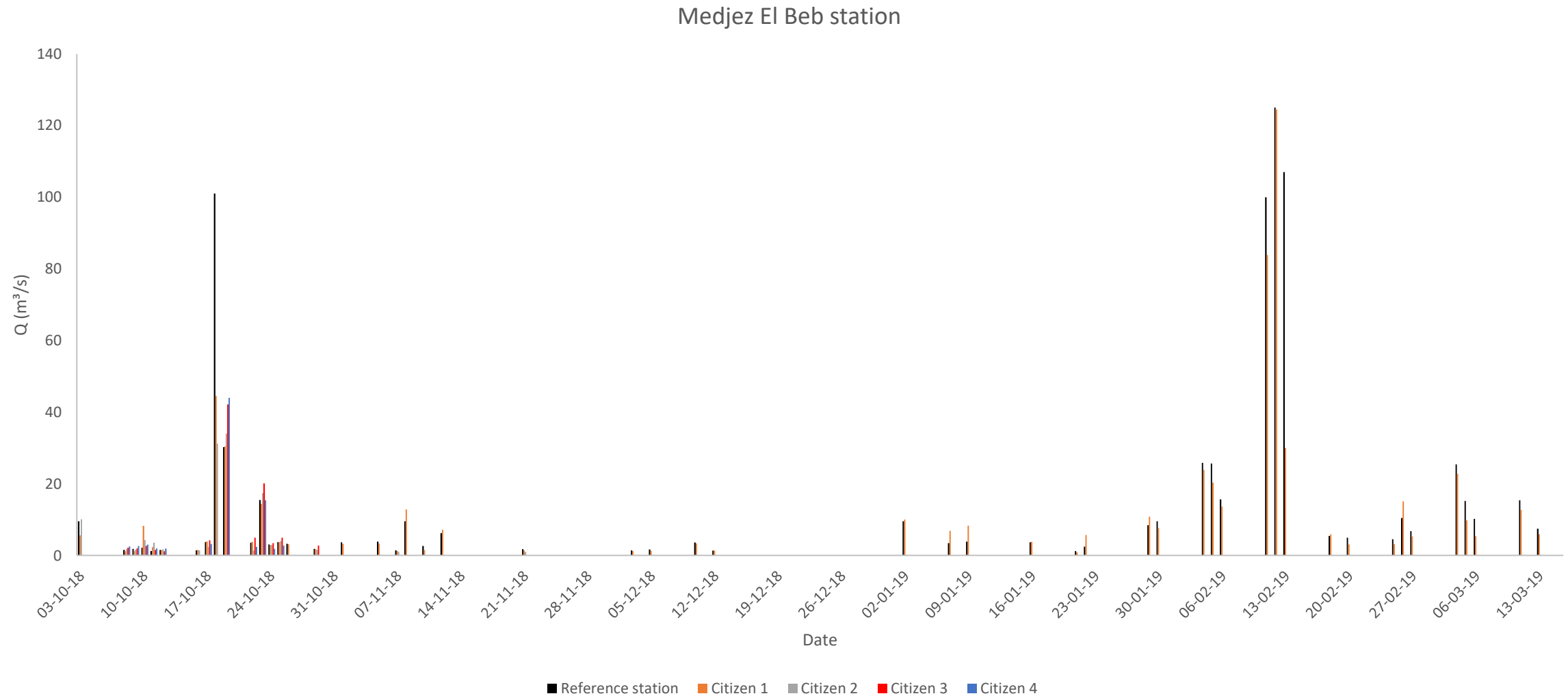
Solid material smooth	60
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OK

Discharge app: Variability between citizens

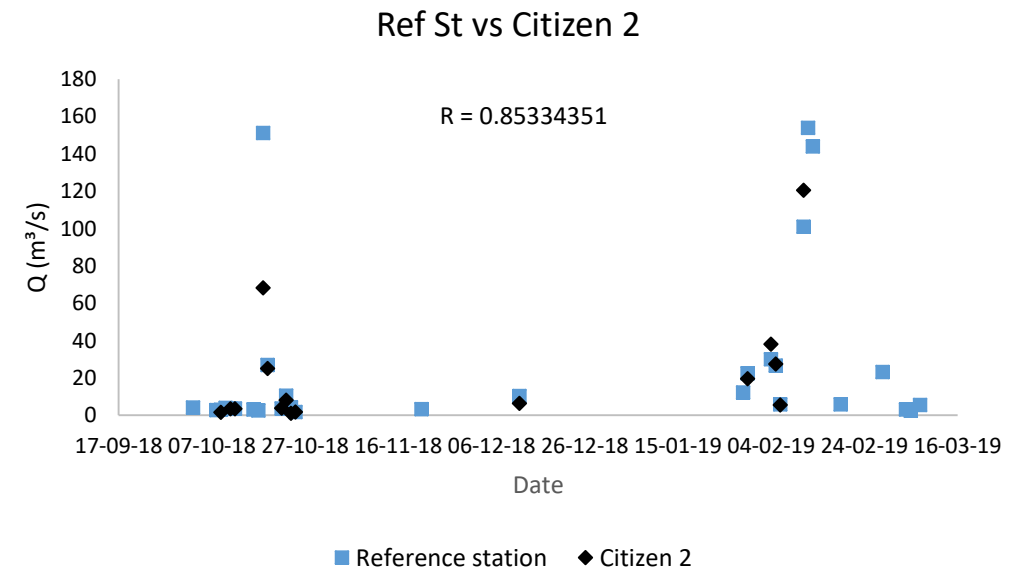
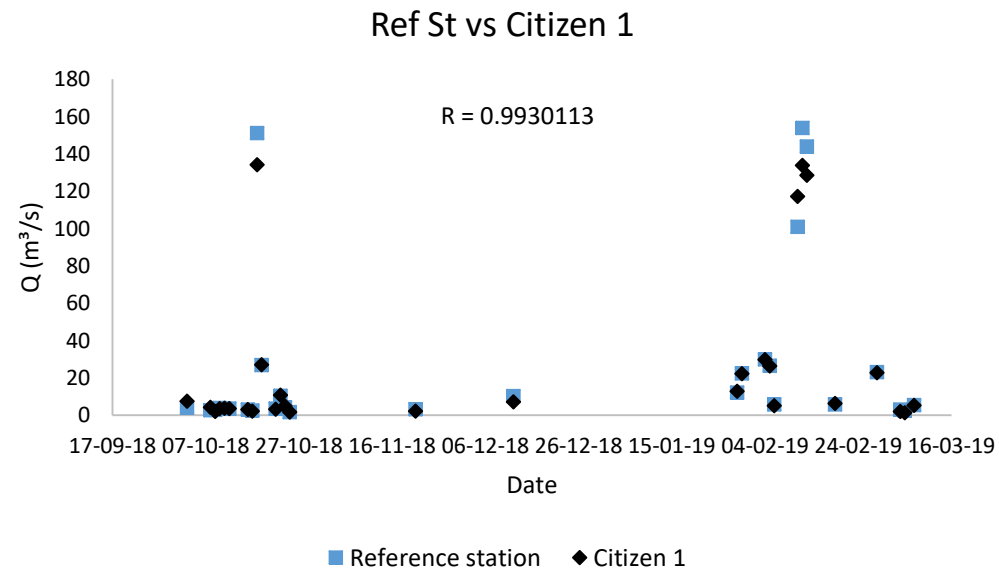


Discharge app: Variability between citizens



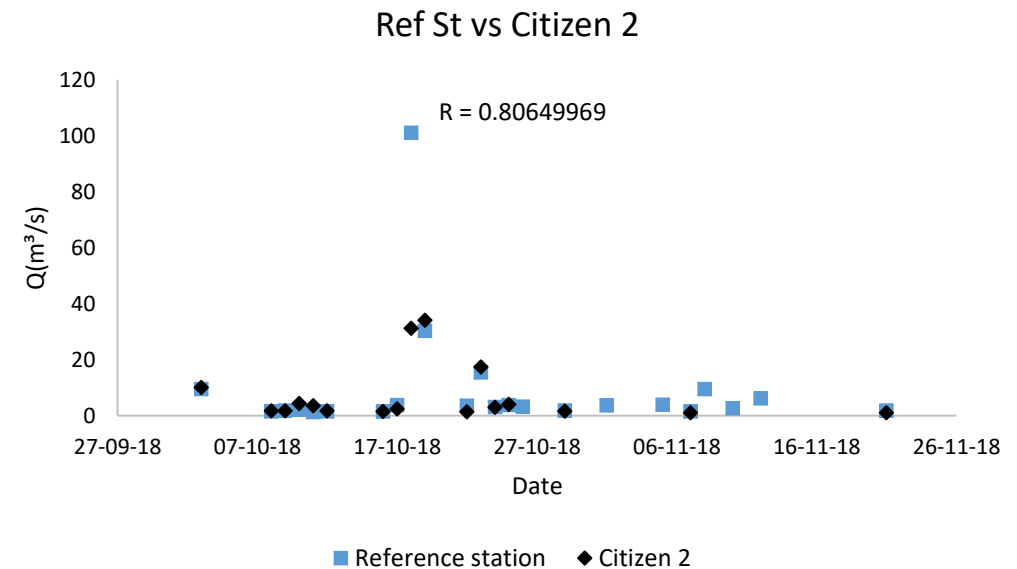
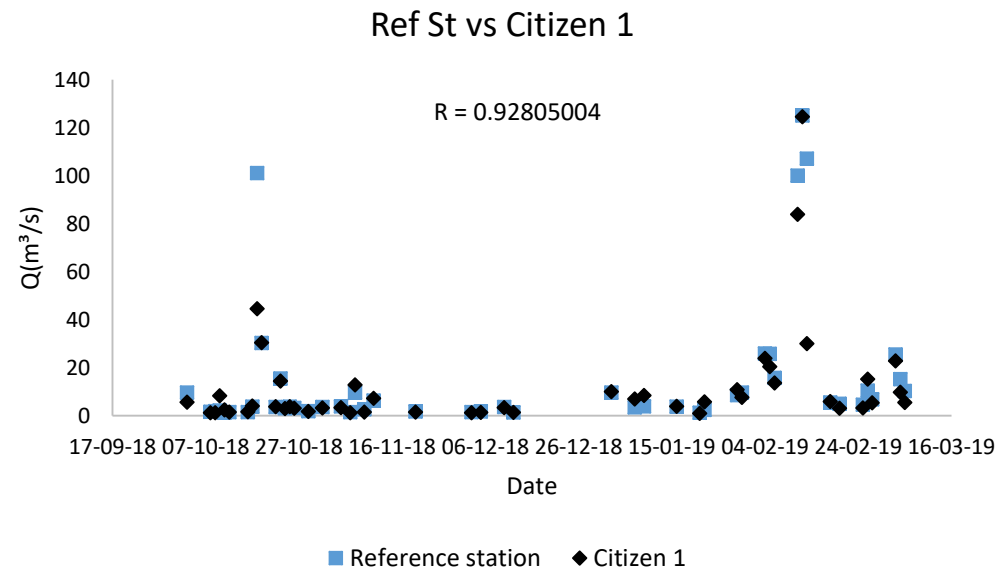
Discharge app vs Reference data

Slouguia Station



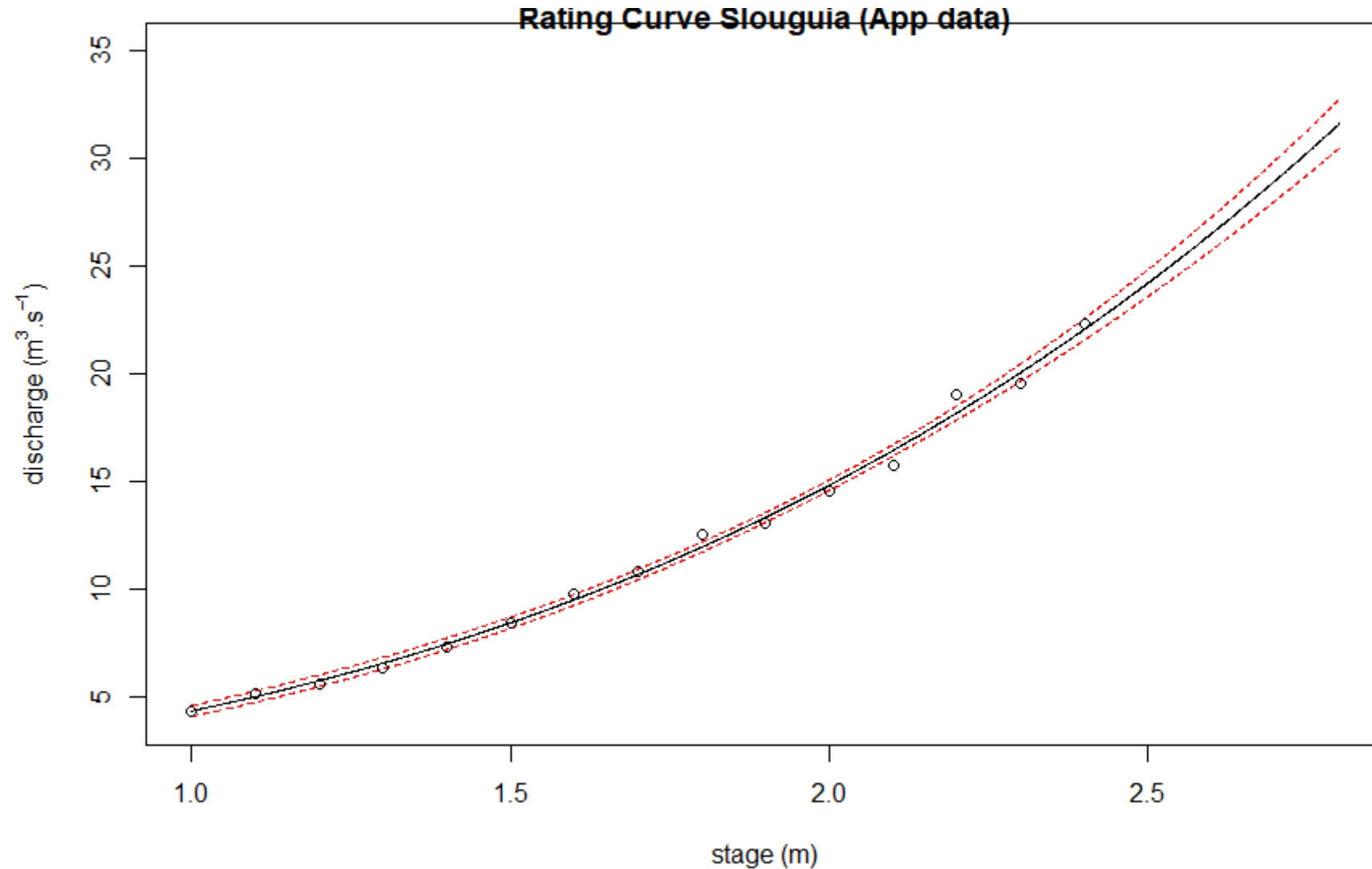
Discharge app vs Reference data

Medjez El Beb Station



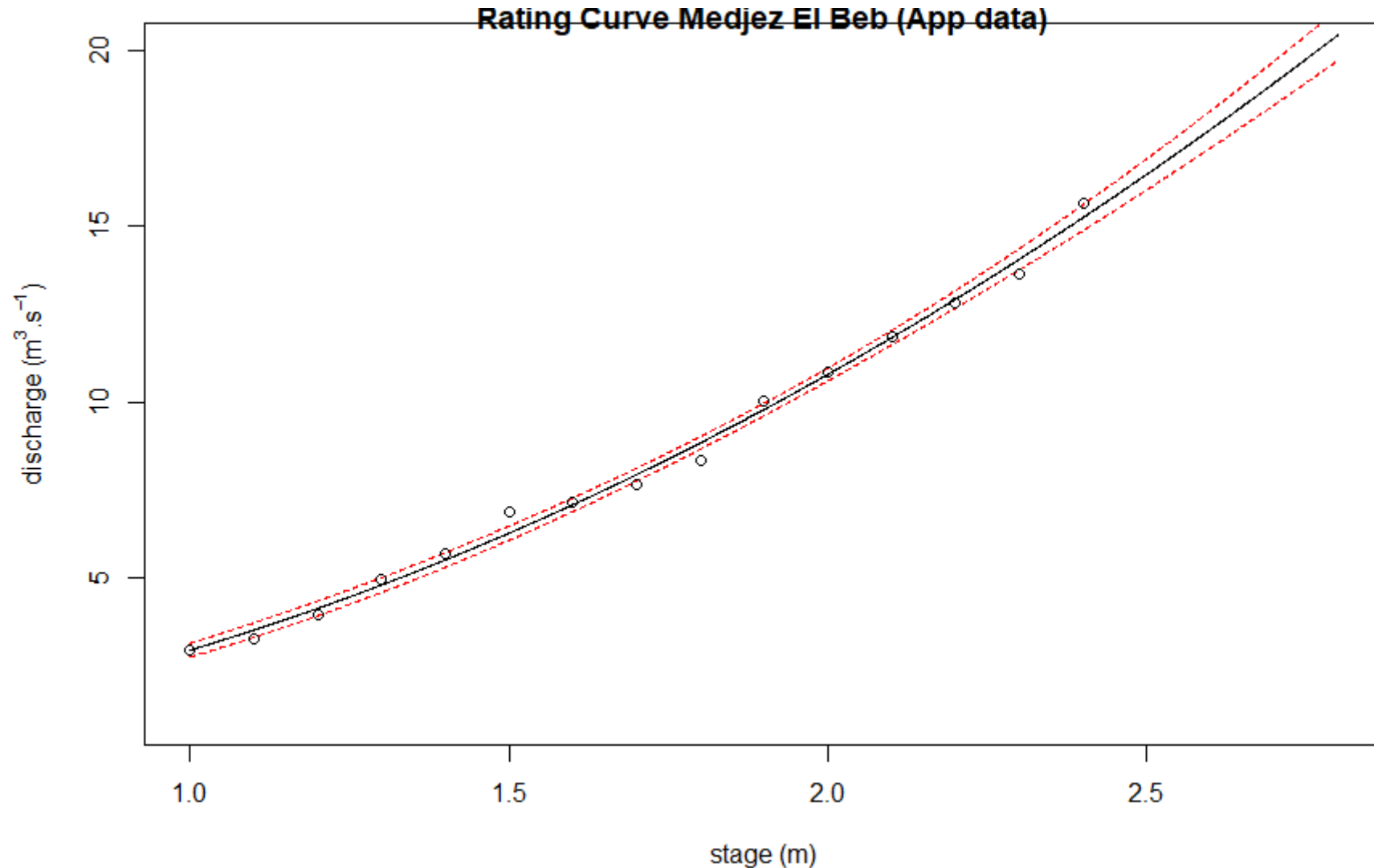
Discharge app: Rating Curves

Slouguia Station (App data)

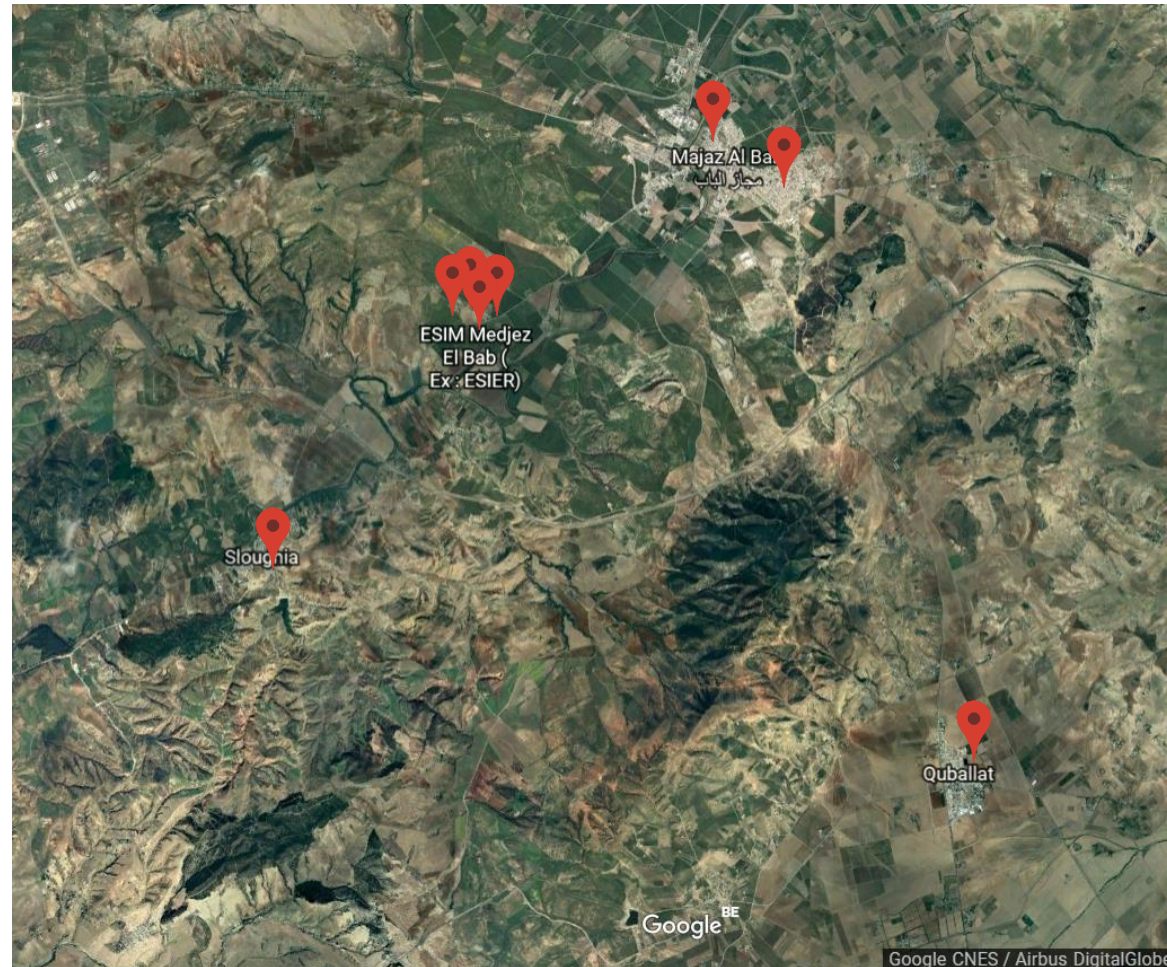


Discharge app: Rating Curves

Medjez El Beb Station (App data)



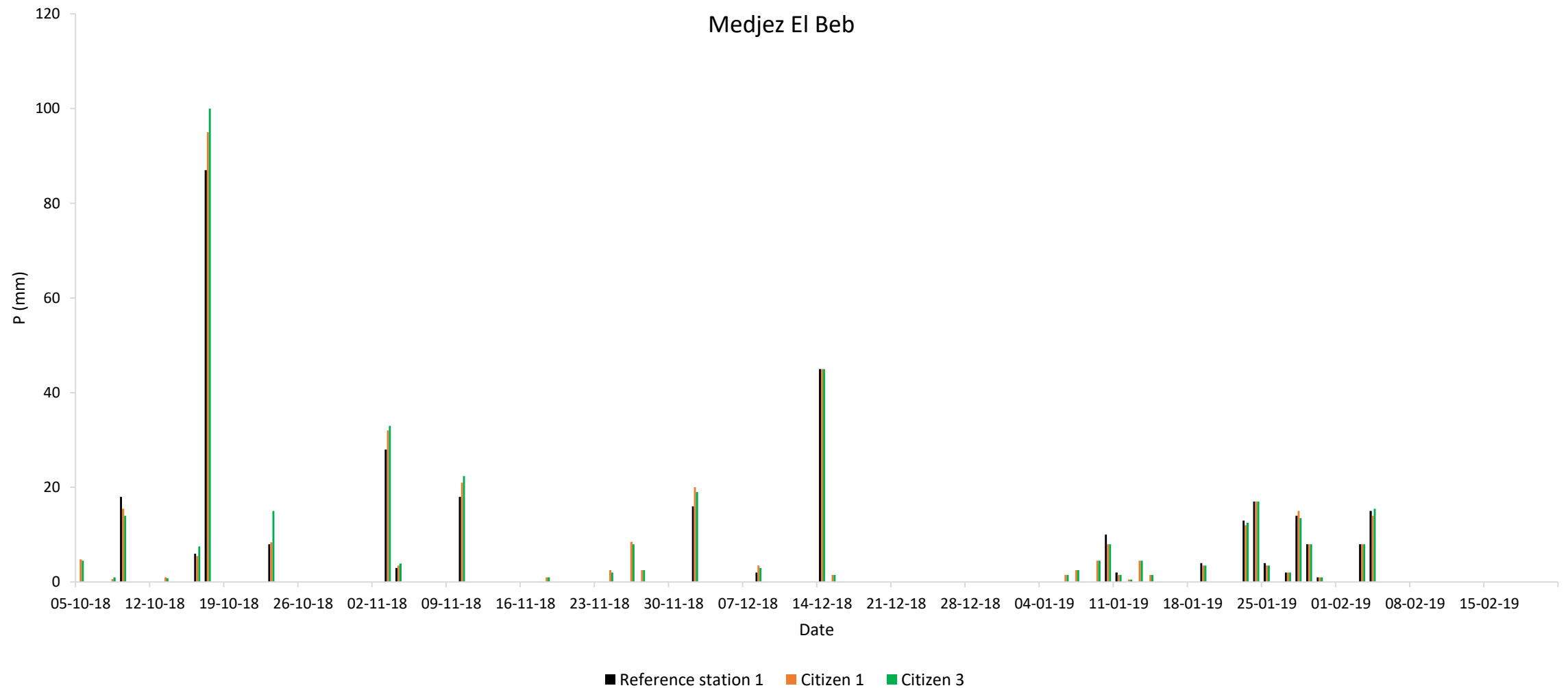
Precipitation: Sites location



Precipitation: Sites preparation

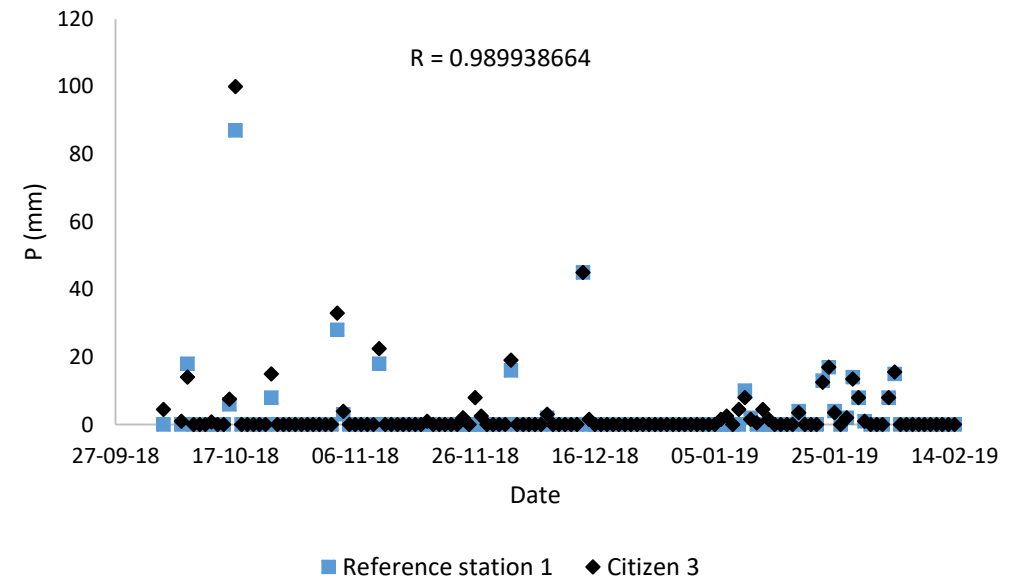
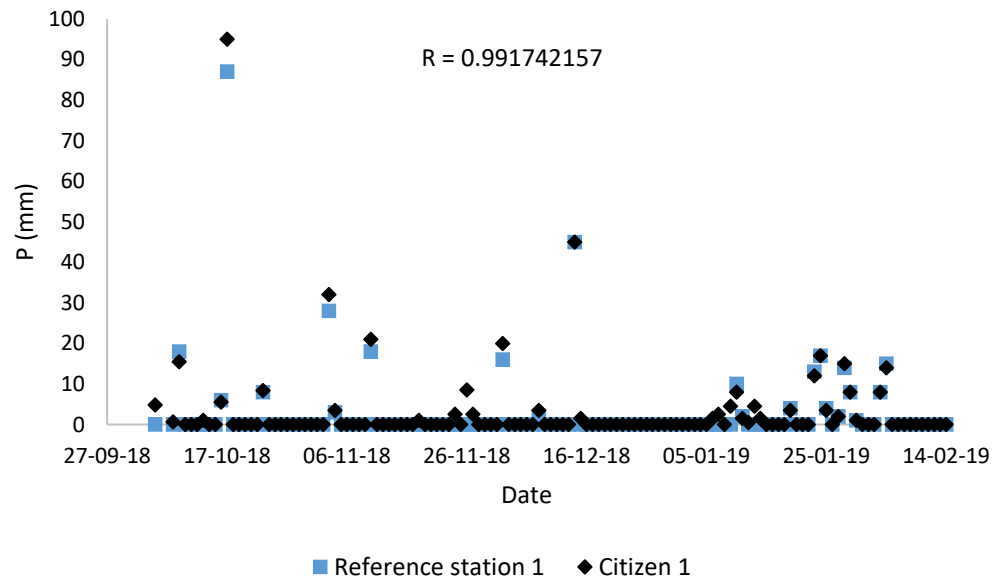


Precipitation: Variability between citizens



Citizen Science data vs Reference data

Medjez El Beb Stations



Conclusion

- The first Citizen Science mission in Tunisia and North Africa was successful and brought an innovative data collection approach by engaging a group of highly motivated citizens in the region of Medjez El Beb.
- The participation rate was significant, 90% of the engaged citizens participated in all of our activities.
- Citizen Science data showed good agreement with the reference data in all sites.

Thank you!