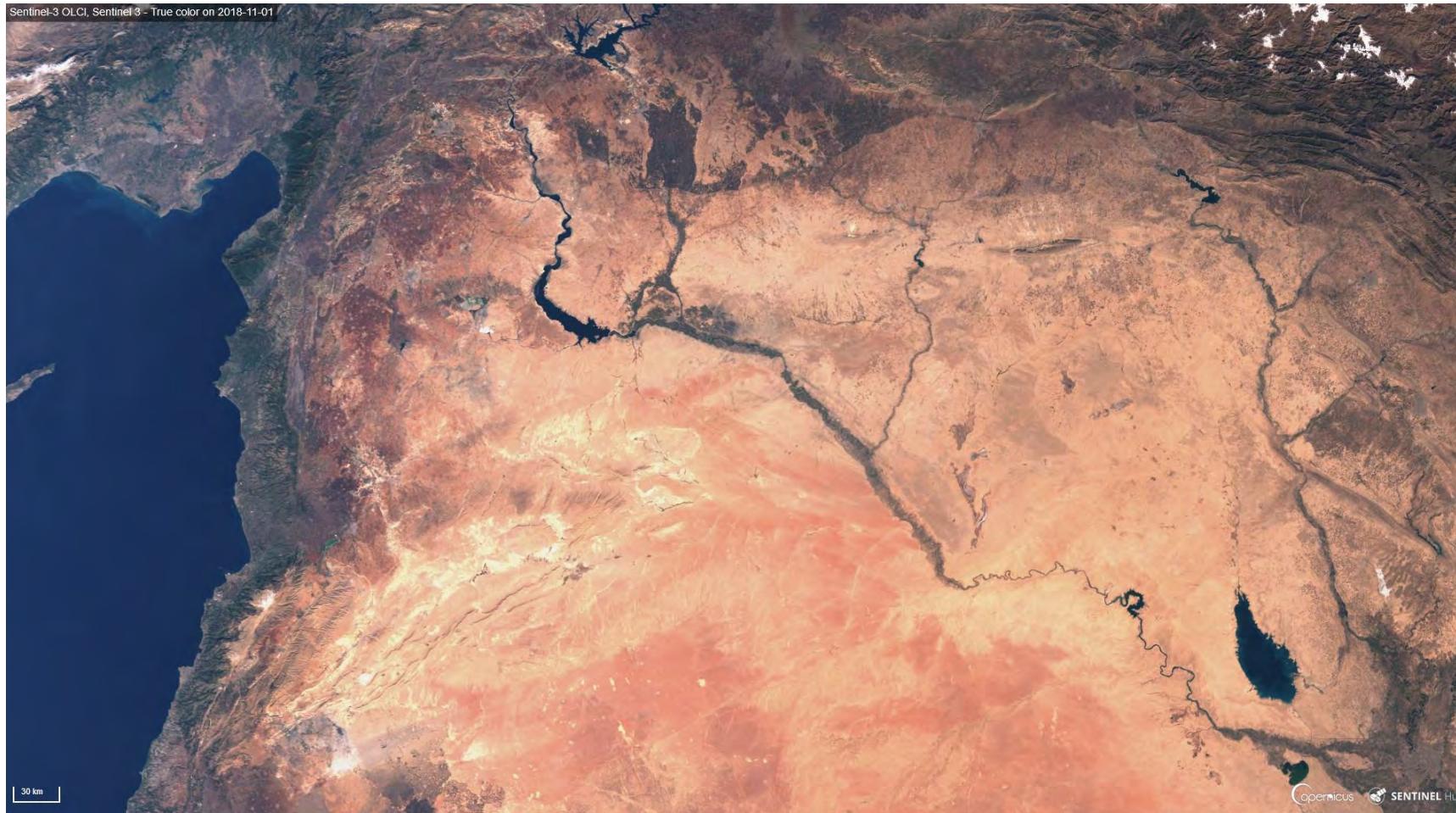


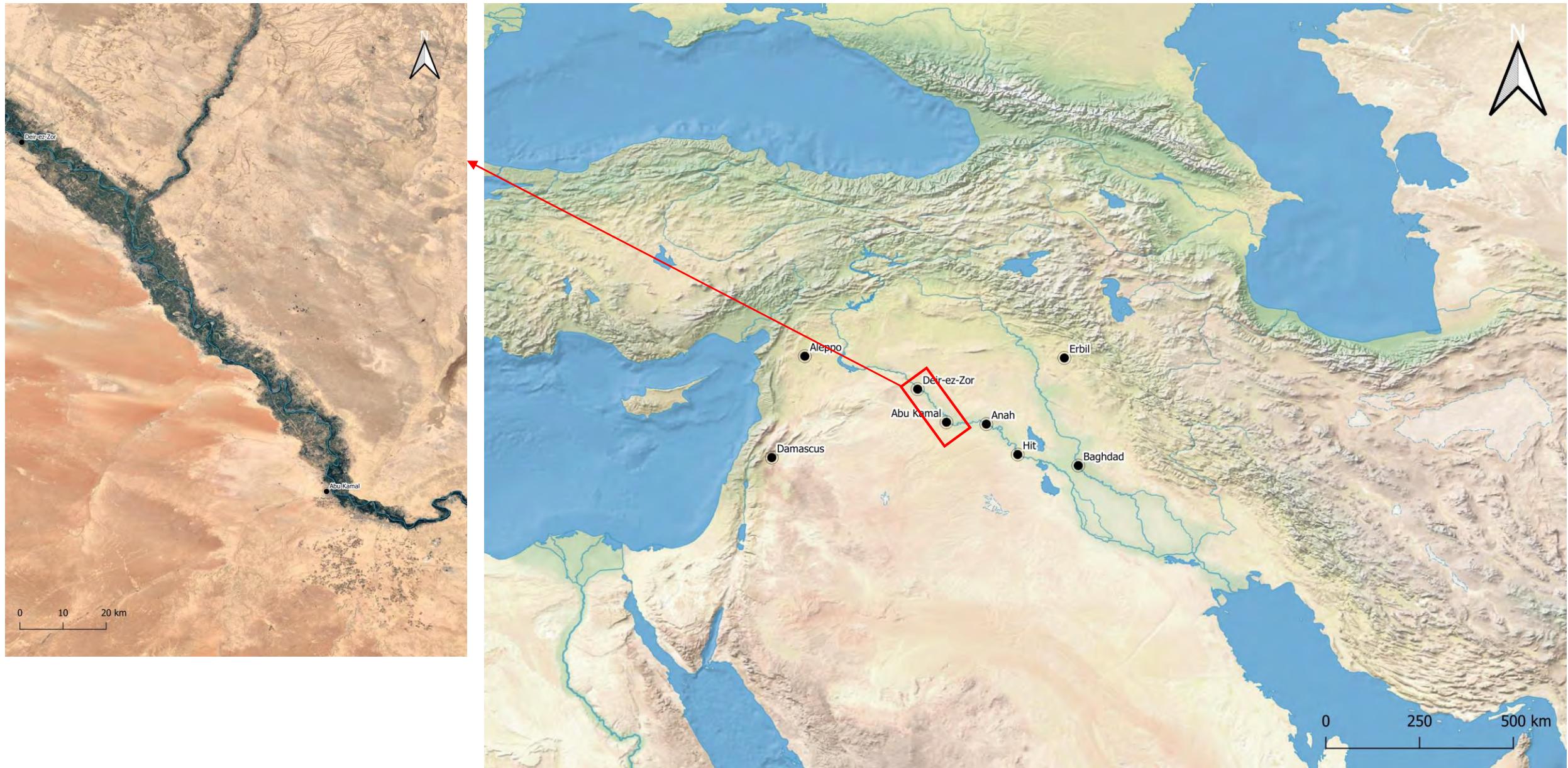
Archaeological Landscape of the Lower Syrian Euphrates Valley: an Integrated Approach Towards the Reconstruction of the Settlement Patterns during the Iron Age.



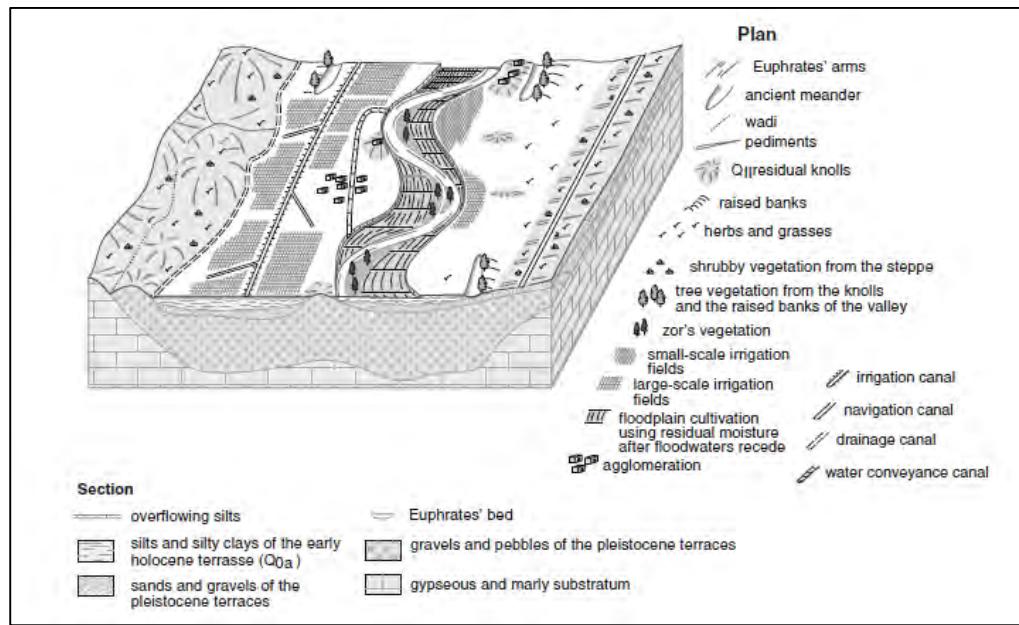
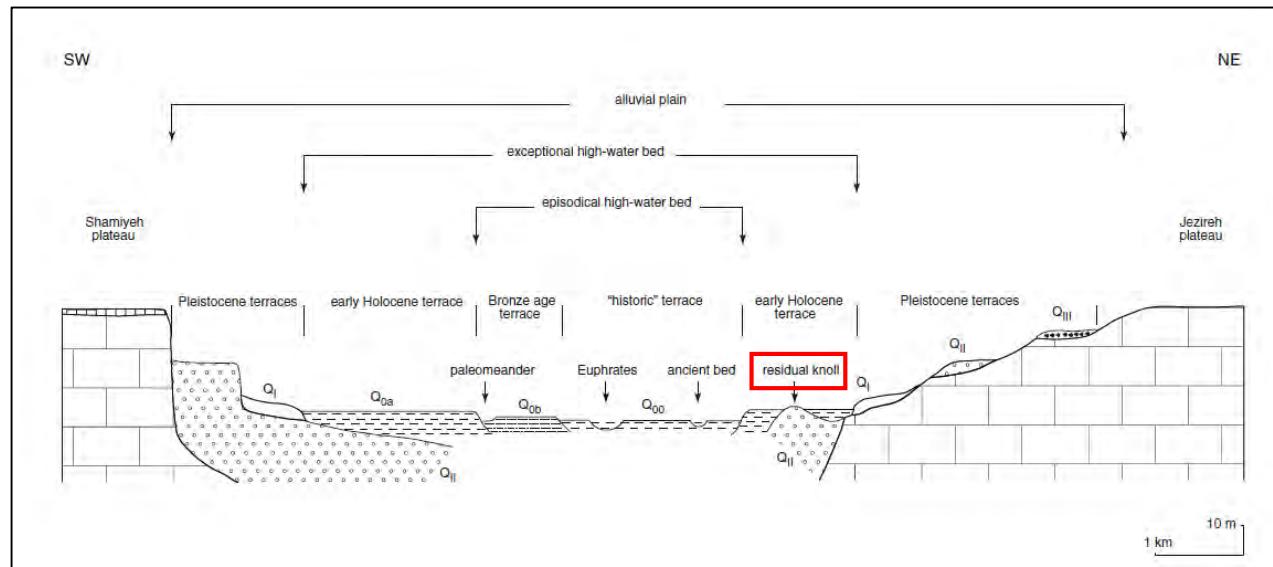
SAPIENZA
UNIVERSITÀ DI ROMA



BROADENING HORIZONS 6
BRIDGING THE GAP:
Disciplines, Times, and Spaces in Dialogue
Berlin | June 24-28, 2019



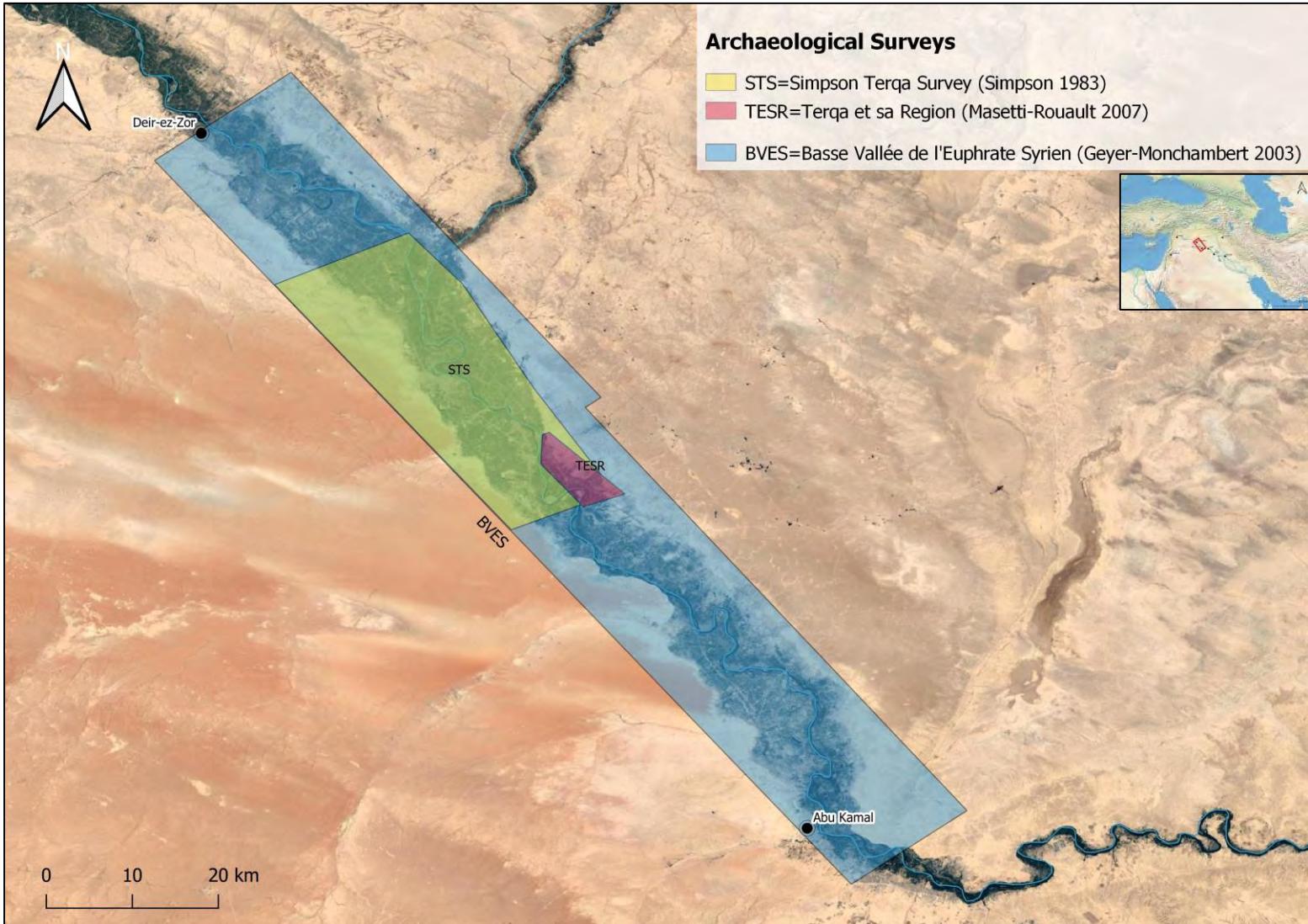
Introduction: The Syrian Lower Euphrates Valley



Above: schematic section of the Euphrates valley with highlighted "outcrops" (from Geyer-Monchambert 2003)

Left: reconstruction of the valley during the Early Bronze Age (from Geyer-Monchambert 2014)

- Slide storica?



Introduction: The Syrian Lower Euphrates Valley – Previous Studies



MISSION ARCHÉOLOGIQUE DE MARI
Tome VI



LA BASSE VALLÉE
DE L'EUPHRATE SYRIEN
du Néolithique à l'avènement de l'islam

Volume I : Texte



SETTLEMENT PATTERNS ON THE MARGINS OF MESOPOTAMIA:
STABILITY AND CHANGE ALONG THE MIDDLE EUPHRATES, SYRIA

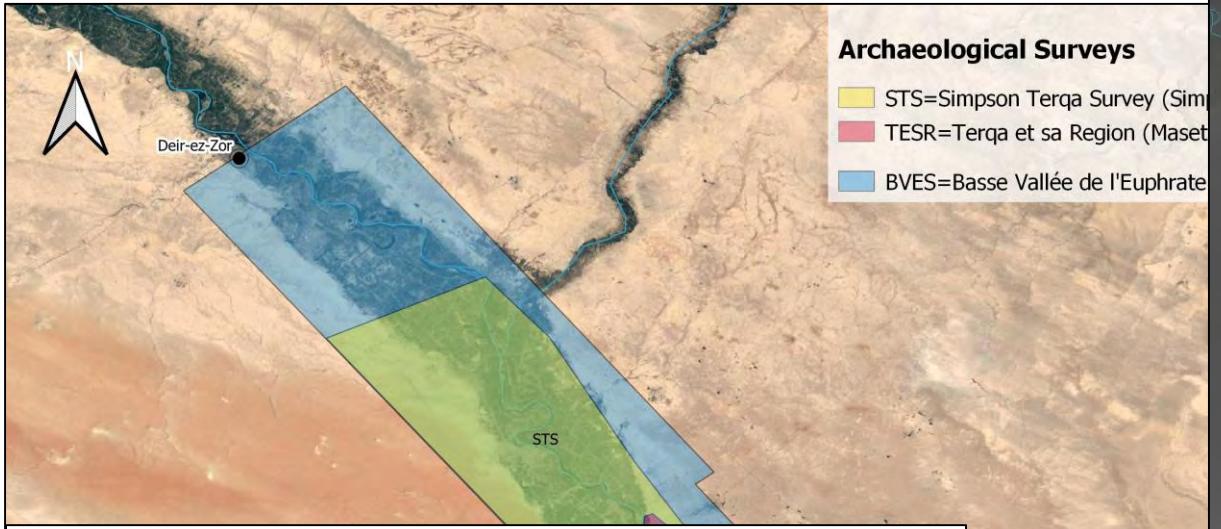
by

Kay Christine Simpson

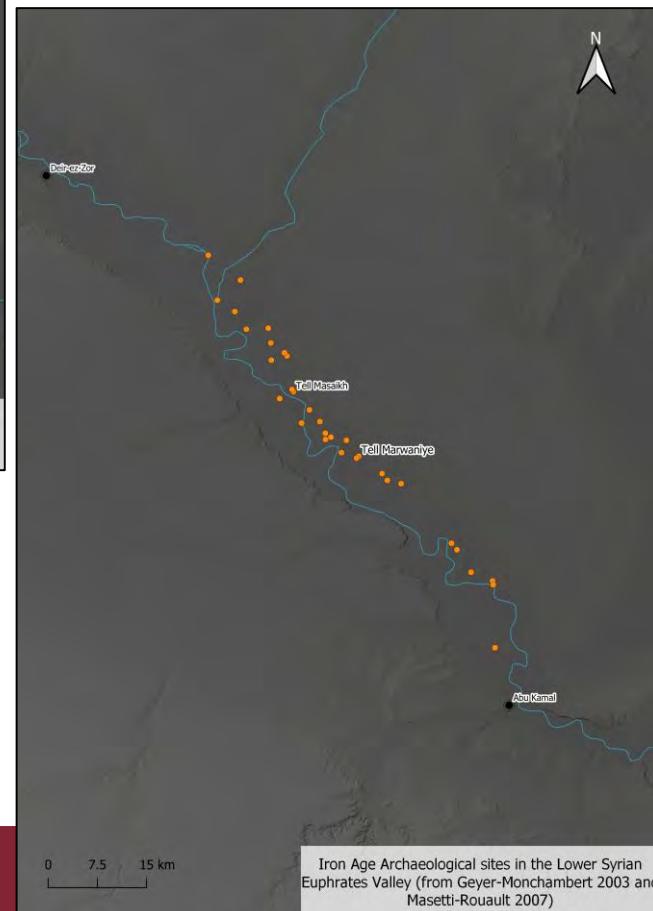
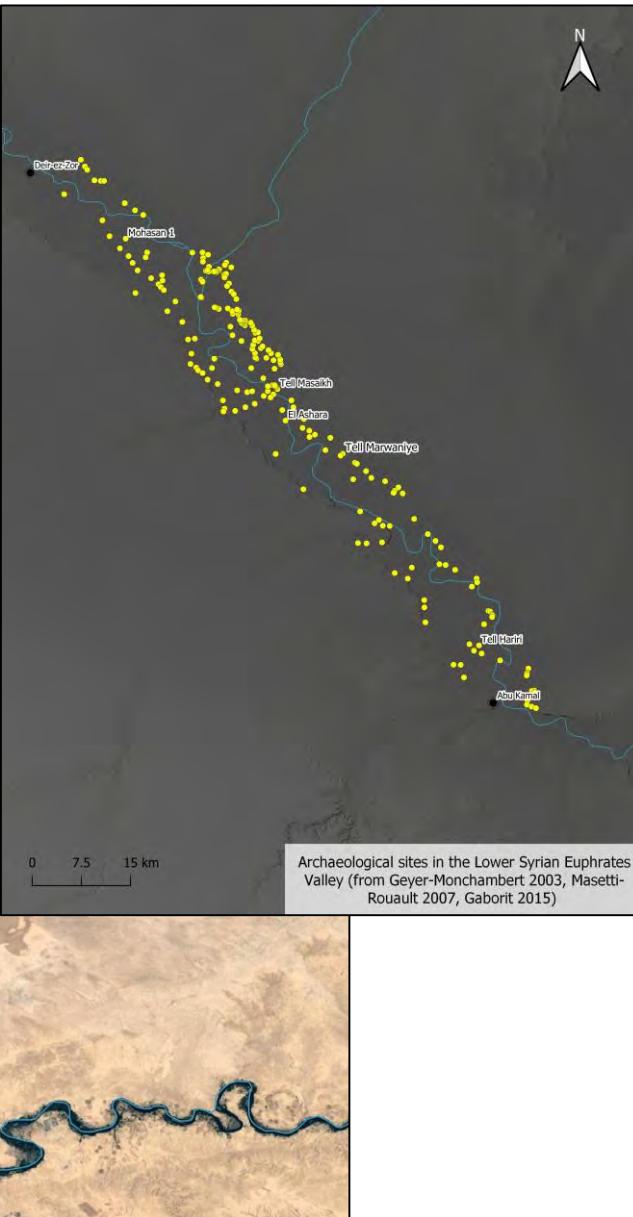
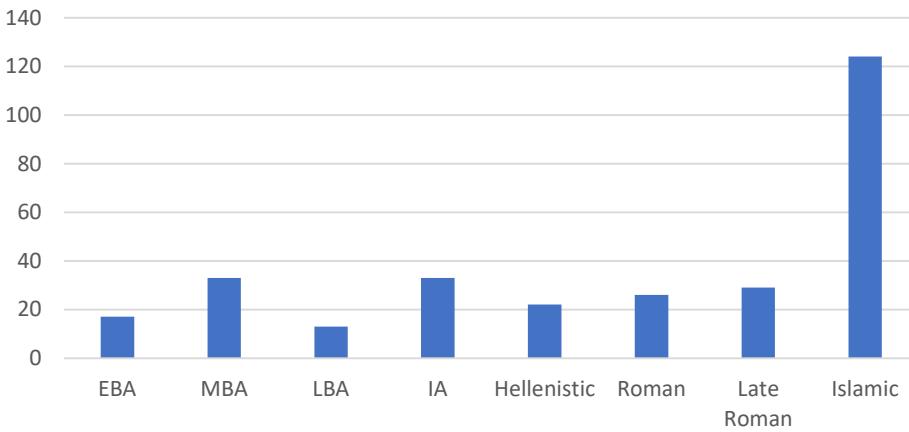
A Dissertation Submitted to the Faculty of the
DEPARTMENT OF ANTHROPOLOGY
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

1983

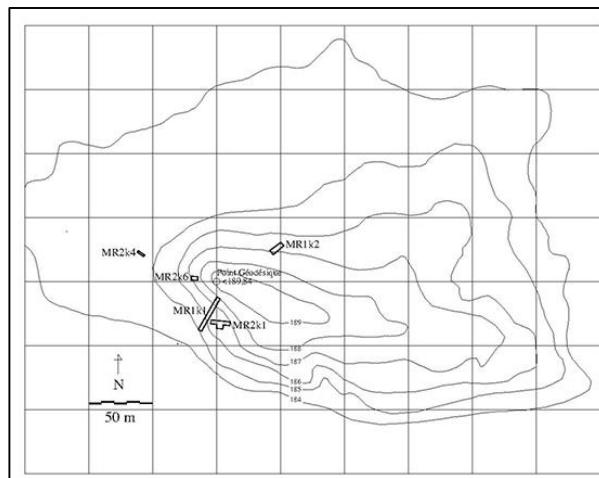
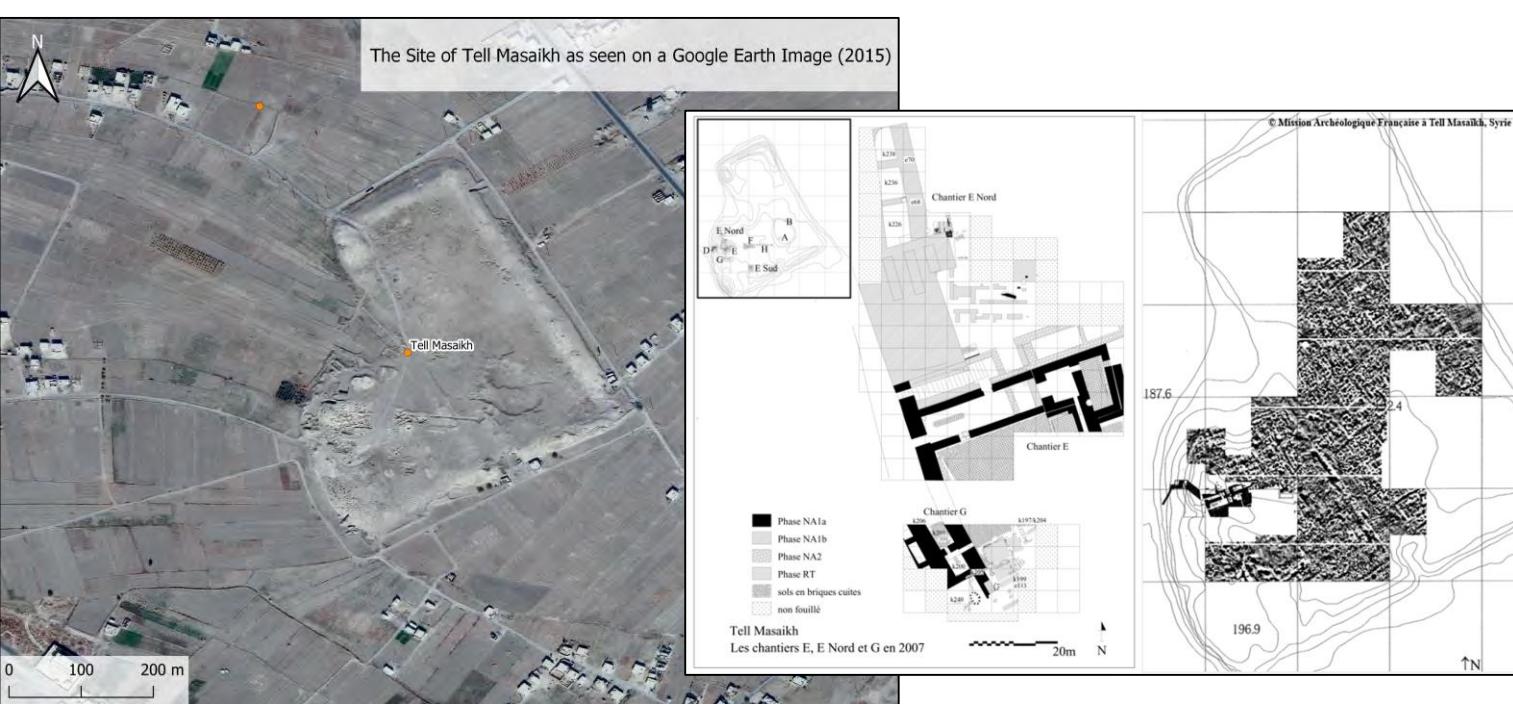
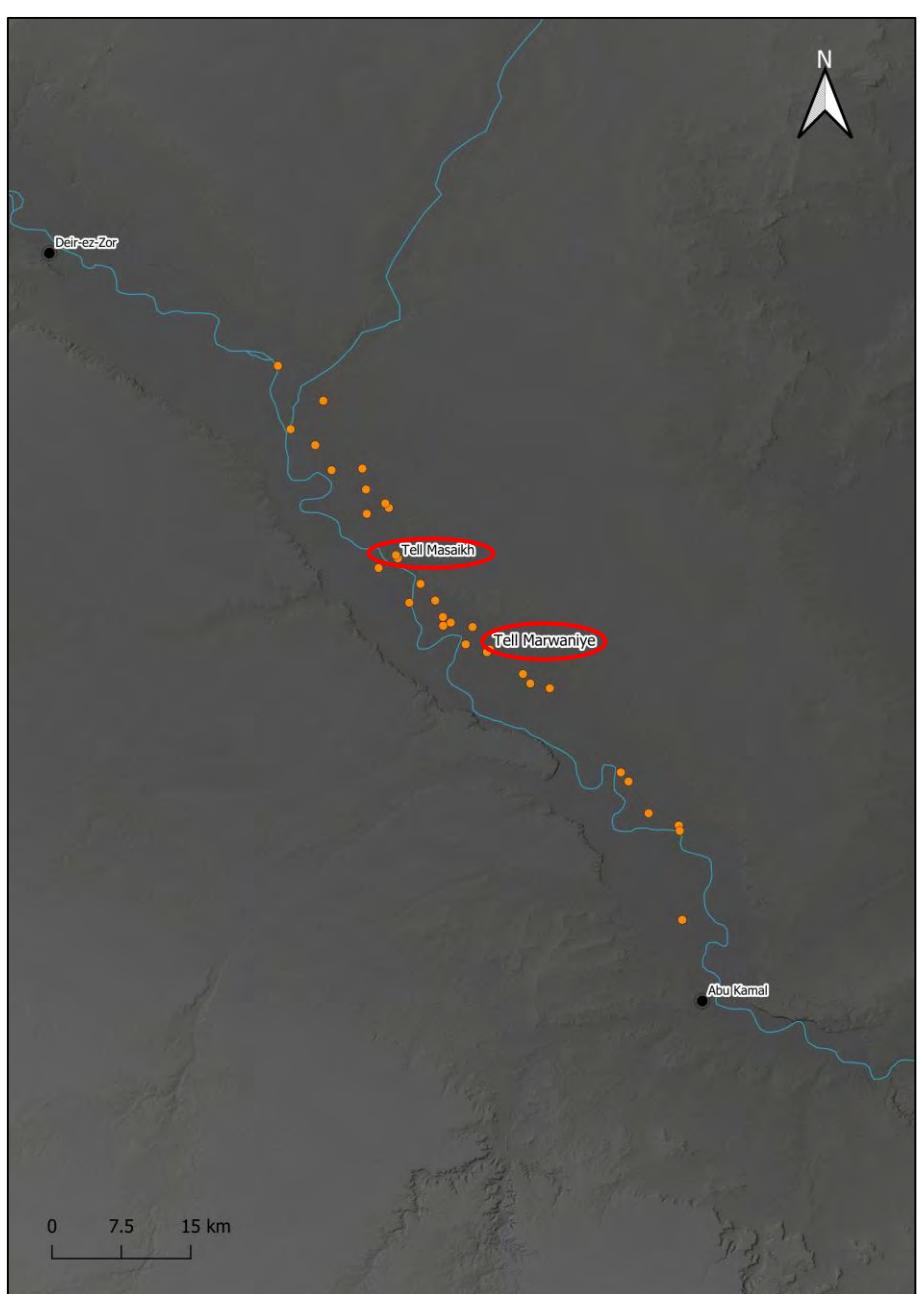
Copyright 1983 Kay Christine Simpson



Number of Sites per Period (from Geyer-Monchambert 2003)



Data: Survey Data



Data: Excavations Data

CORONA satellite Images:

- Operating from 1960 to 1972
- Declassified in 1995 (Clinton 1995a-b)
- Most useful for archaeology are the KH-4A e KH-4B, with a spatial resolution of 3 and 1-2 m respectively.

Naming

DS 1102-1025D A042 = Declassified satellite image

DS 1102-1025D A042 = Satellite generation. KH4B is 11XX, KH4A is 10XX.

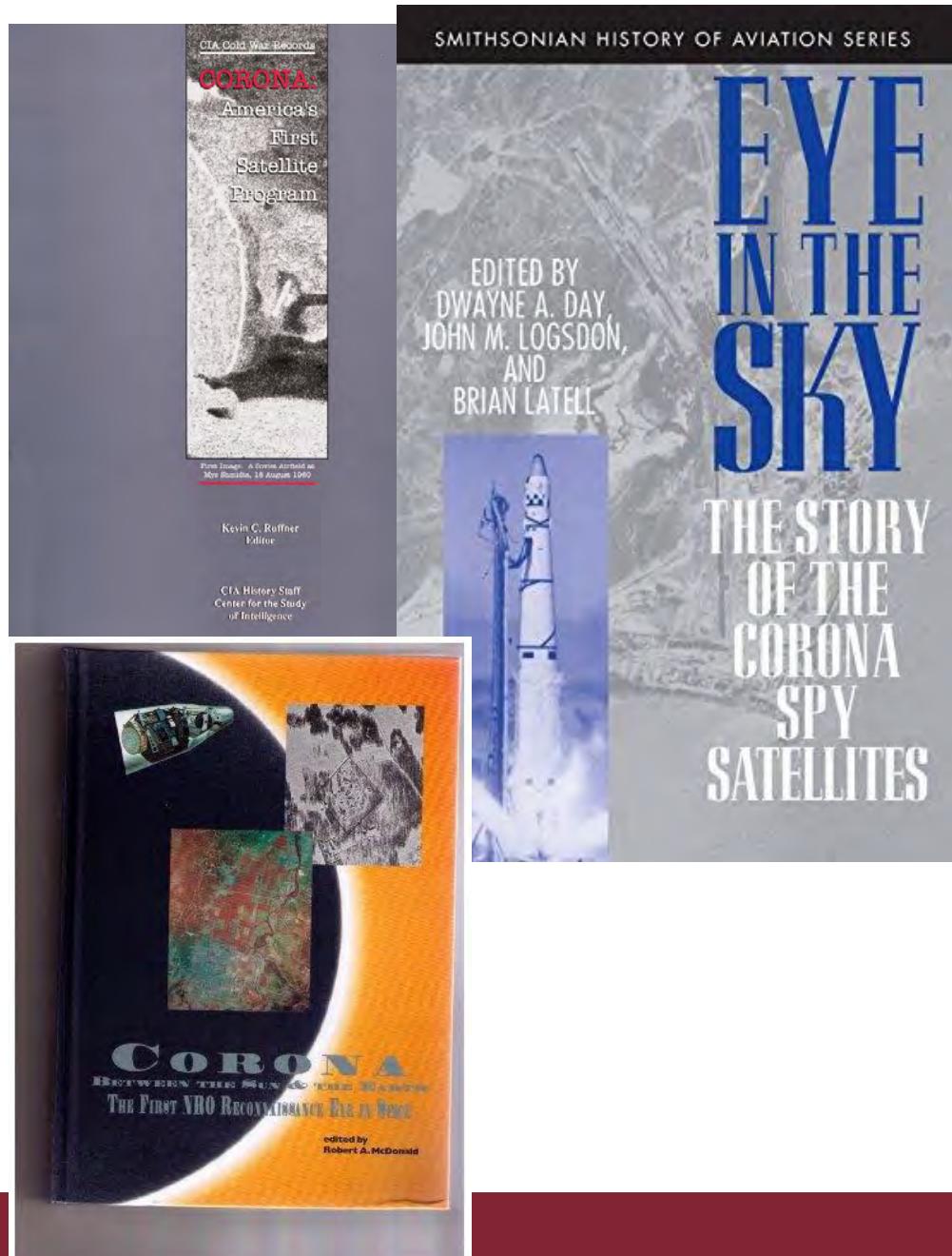
DS 1102-1025D A042 = Mission number. KH4B missions range between 1101-1117.

DS 1102-1025D A042 = Bucket number (Film container). Satellites had two buckets.

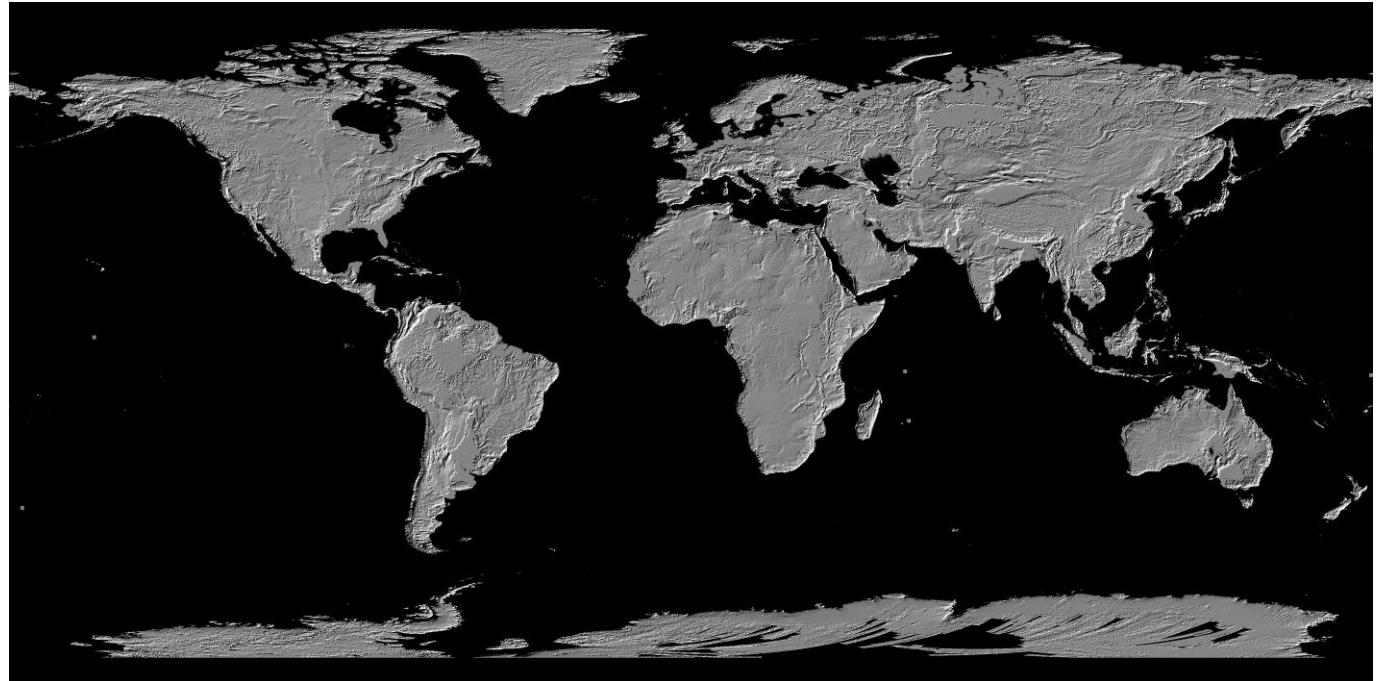
DS 1102-1025D A042 = Revolution number.

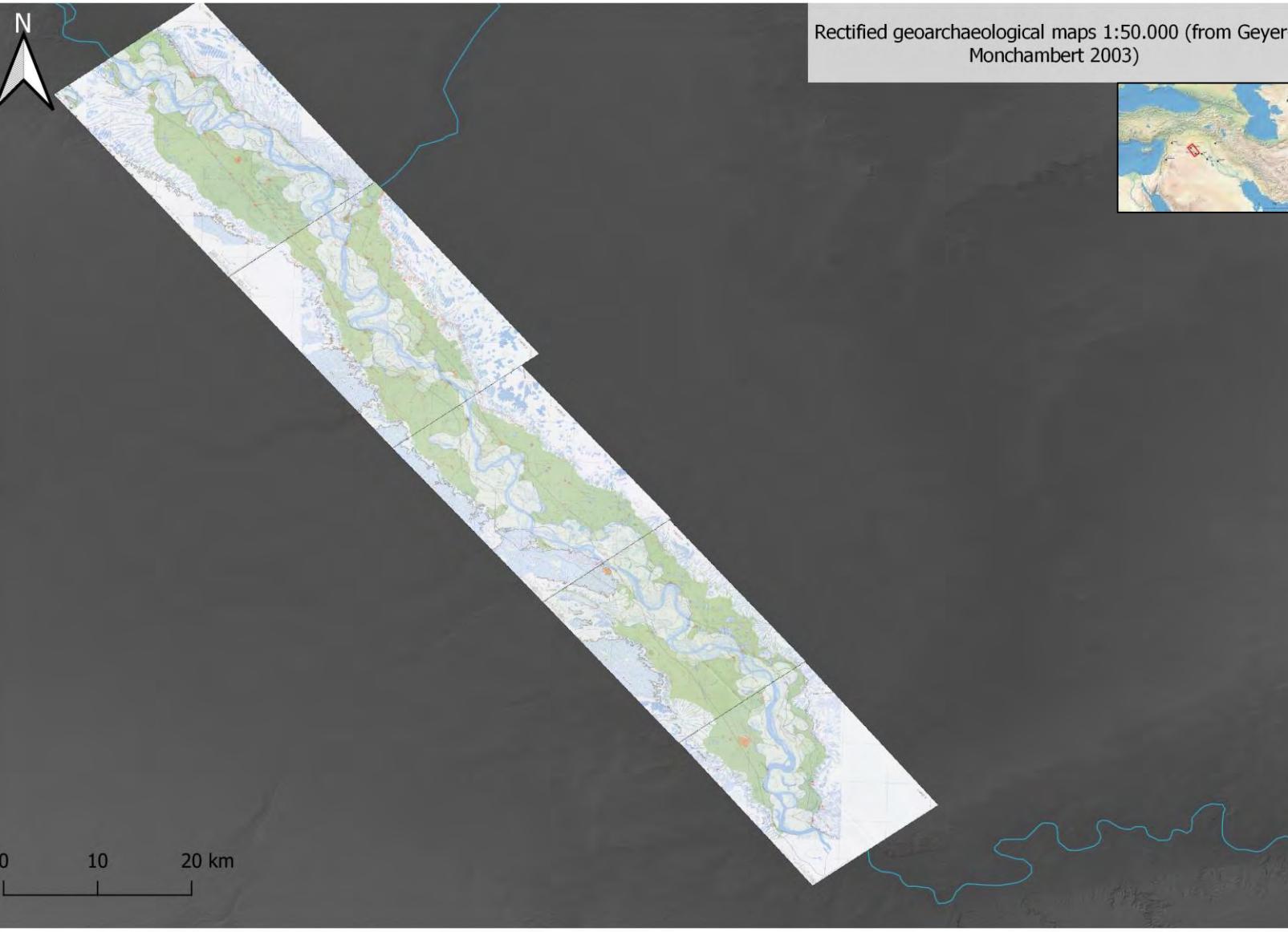
DS 1102-1025D A042 = Camera. A or F indicate Aft or Forward camera.

DS 1102-1025D A042 = Number of frame associated with each revolution.

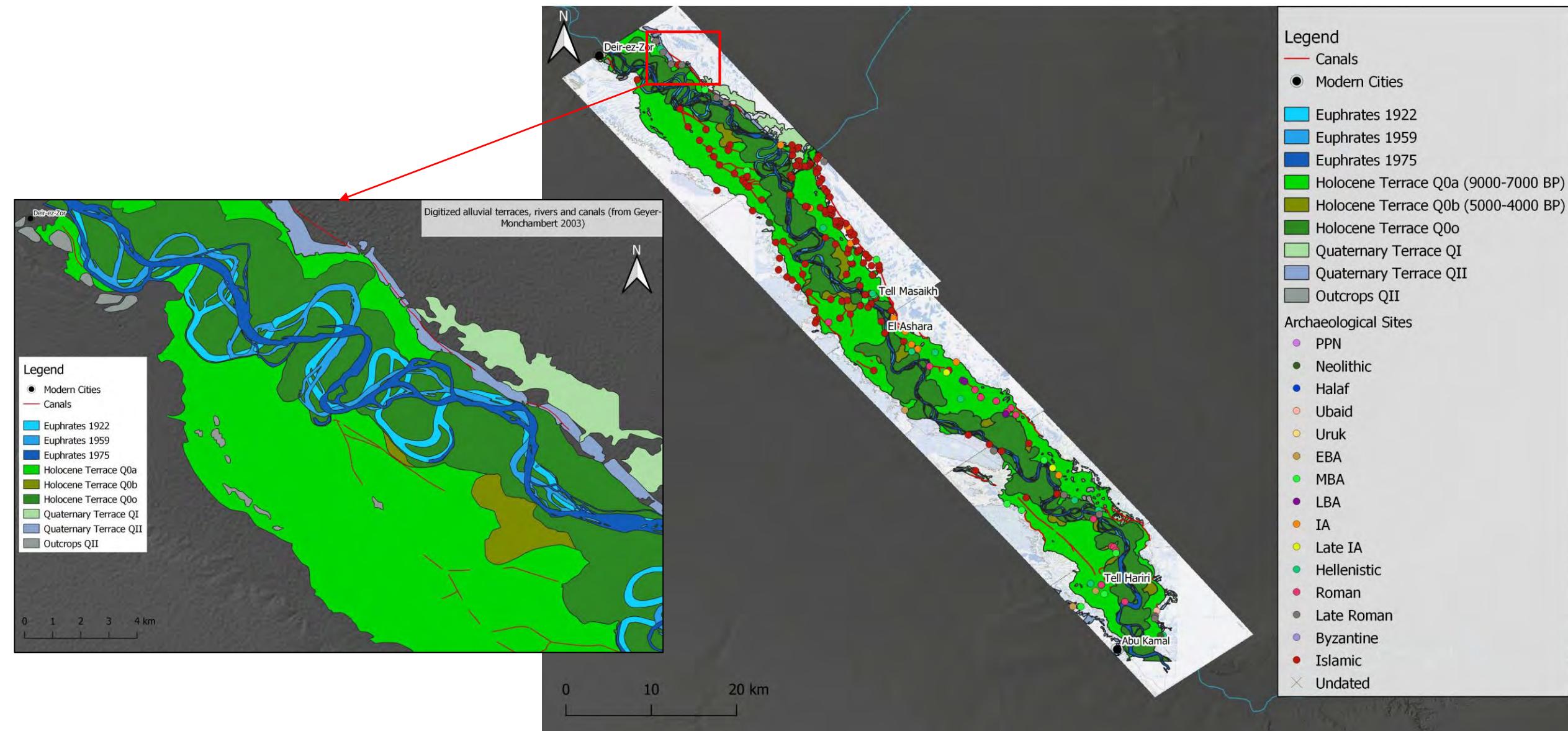


- SRTM DEM
 - Acquired in 2000 and processed in different steps until 2015.
 - 1 arc second spatial resolution (30 m) globally
 - Freely Available
- ASTER DEM
 - Released in 2009
 - 1 arc second spatial resolution (30 m) globally
 - Freely Available
 - Lower quality over some areas of the world

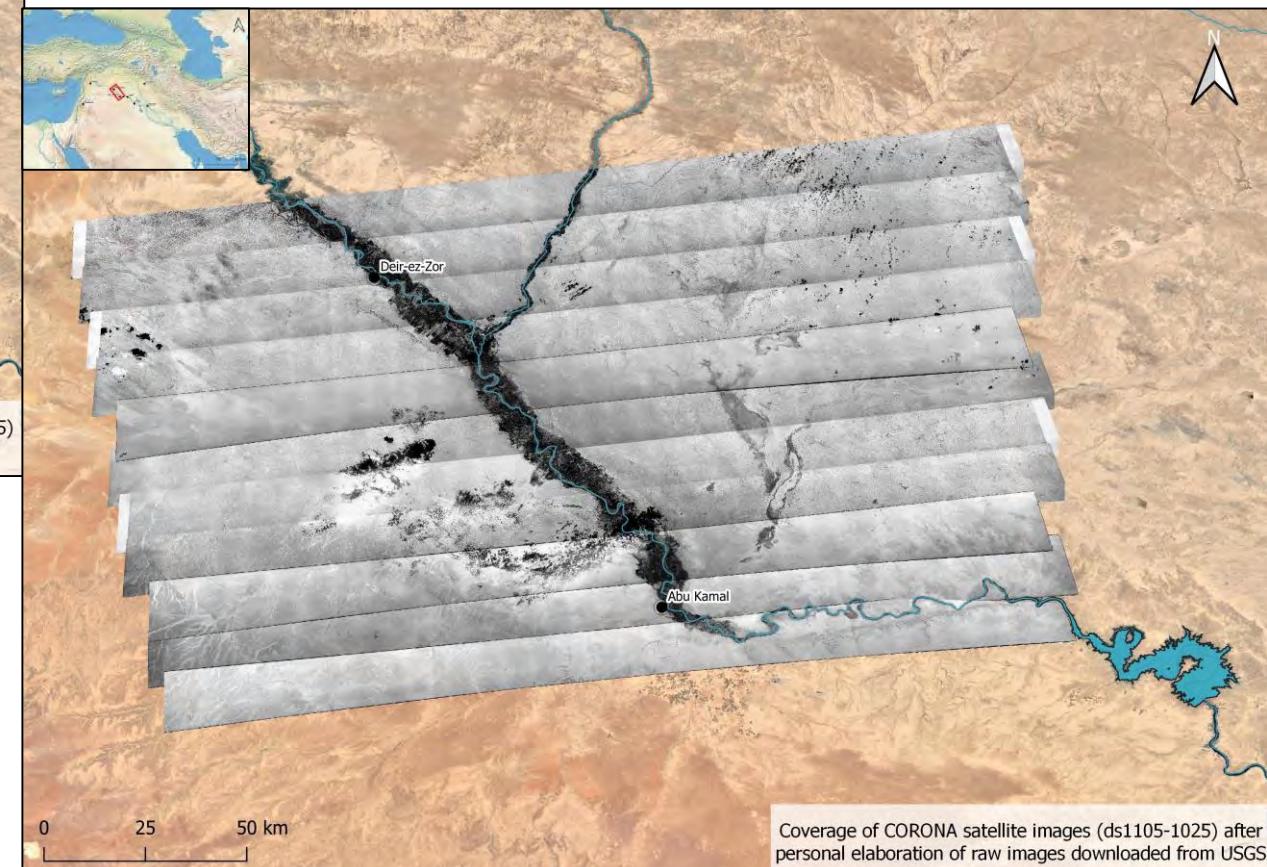
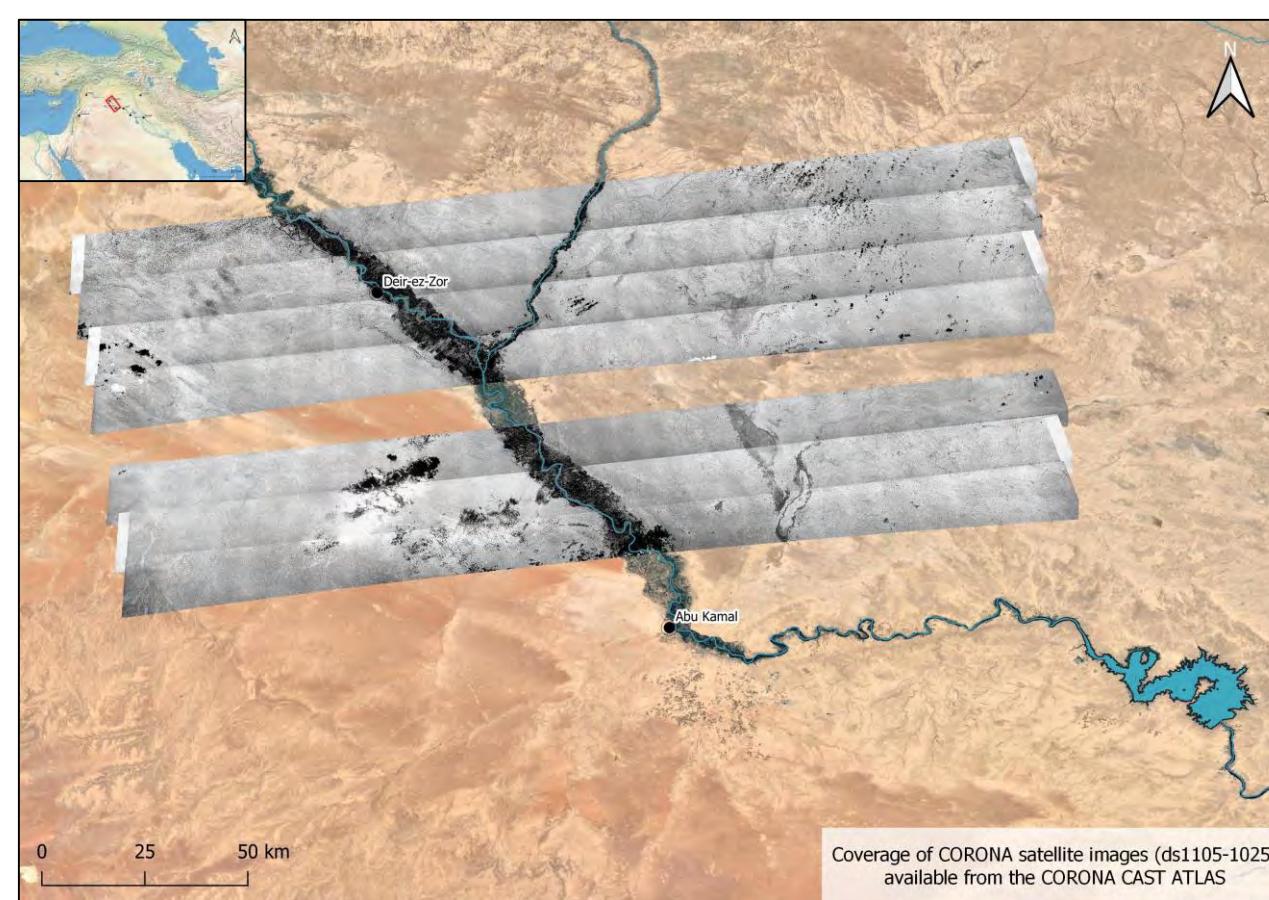




Methods: Georeferencing Survey Maps



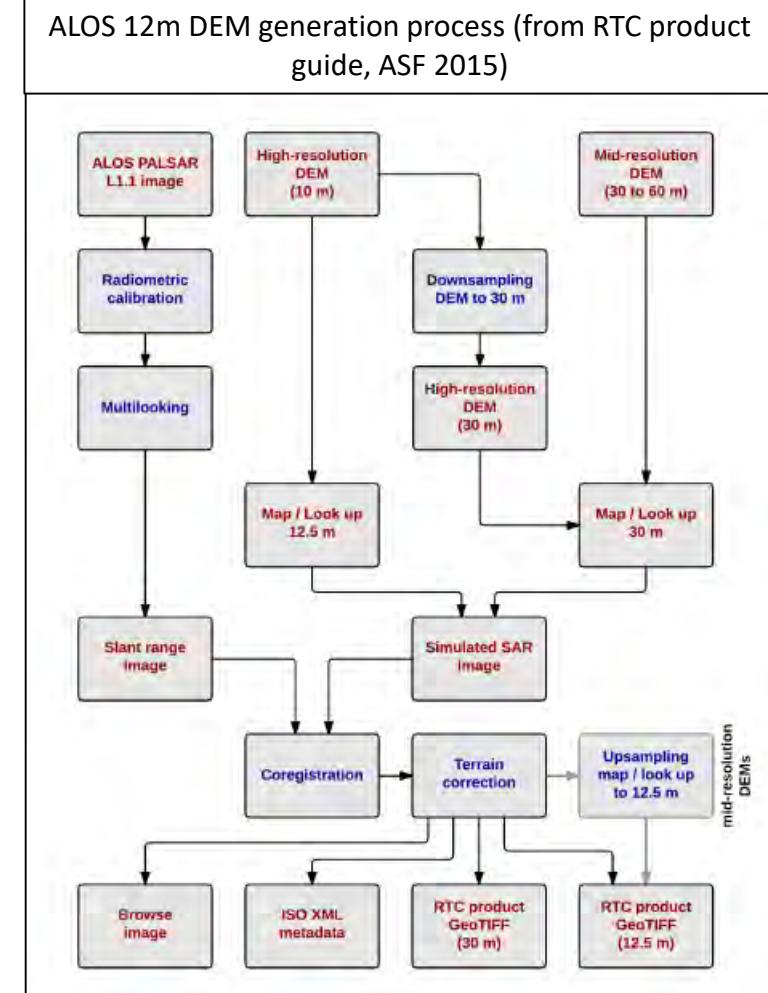
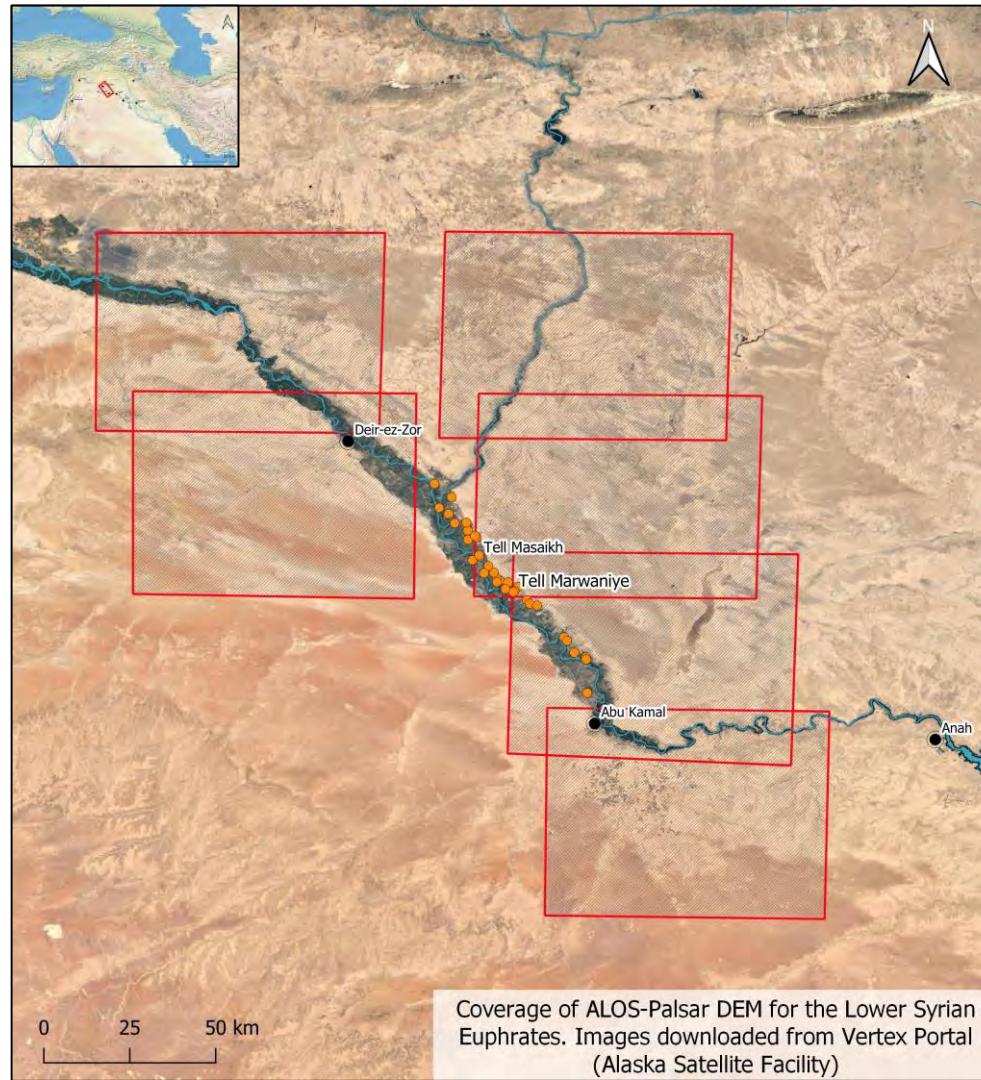
Methods: Digitization of Survey Maps, Geomorphology and Archaeological Sites



Methods: Coverage of CORONA images

• ALOS-Palsar DEM

- Produced in 2010 thanks to a joint project between NASA and JAXA
- 12 m resolution obtained by resampling SRTM DEM
- No global coverage
- Freely available from the Alaska Satellite facility (ASF) Website



ARCHEOLOGY

GEOMORPHOLOGY

CORONA

DEM

GIS

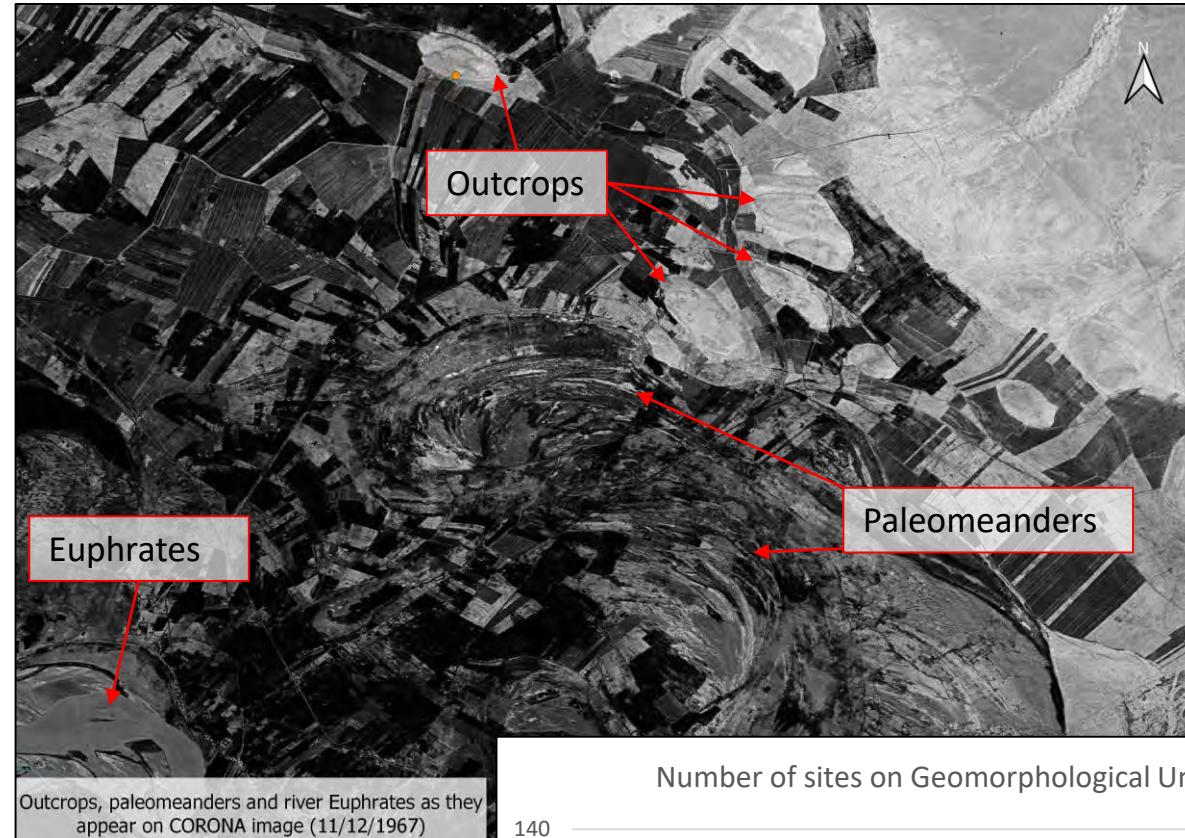
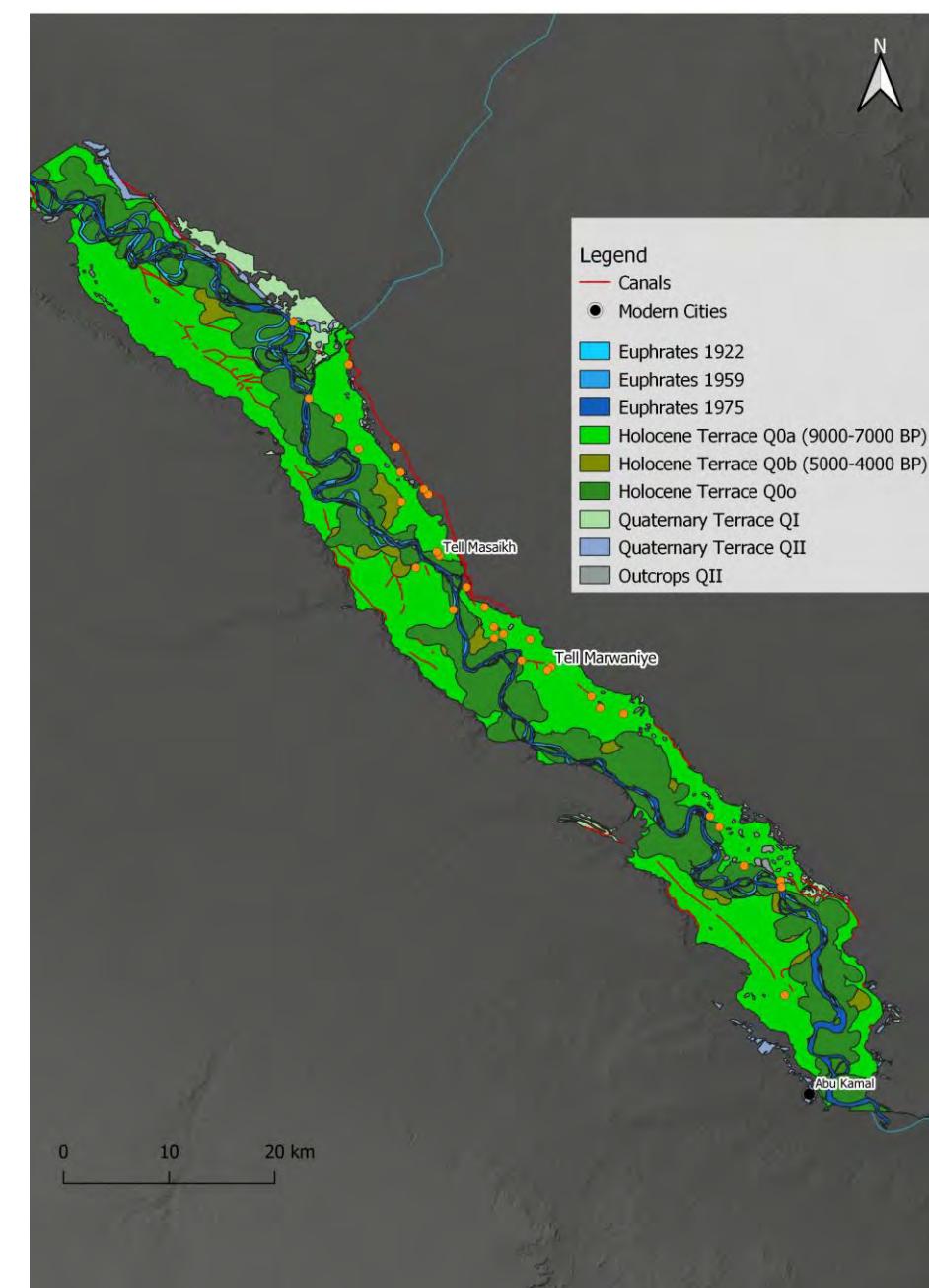
RELATIONS BETWEEN
SITES AND
GEOMORPHOLOGY

EVALUATION OF
CORONA FOR SITES AND
WATER FEATURE
RECONNAISSANCE

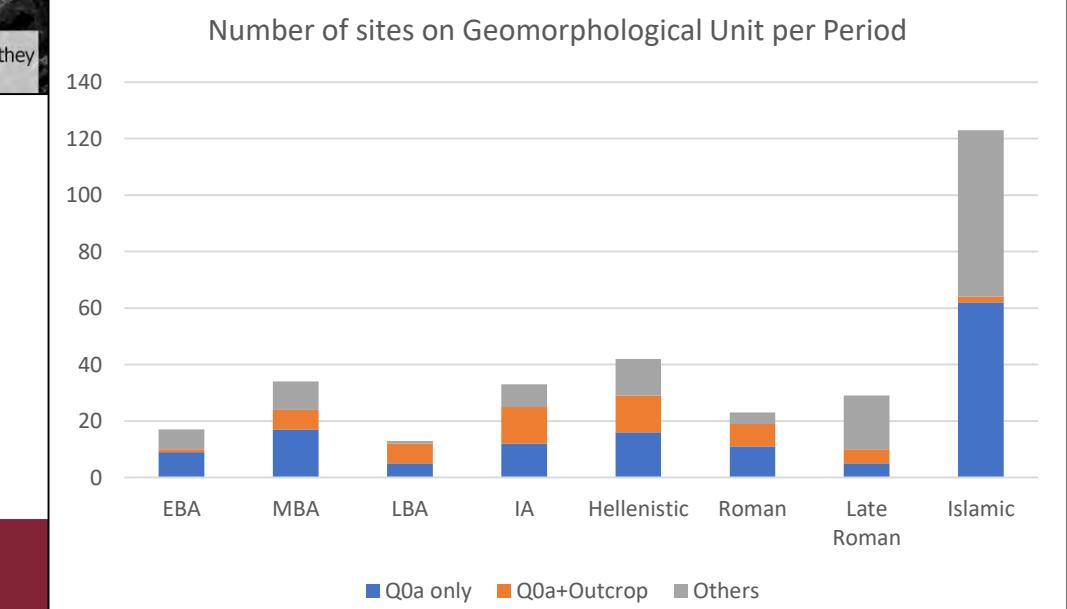
TOPOGRAPHIC "CHECK"
WITH DEM

DIACHRONIC RELATION
BETWEEN SITES AND
WATER FEATURES

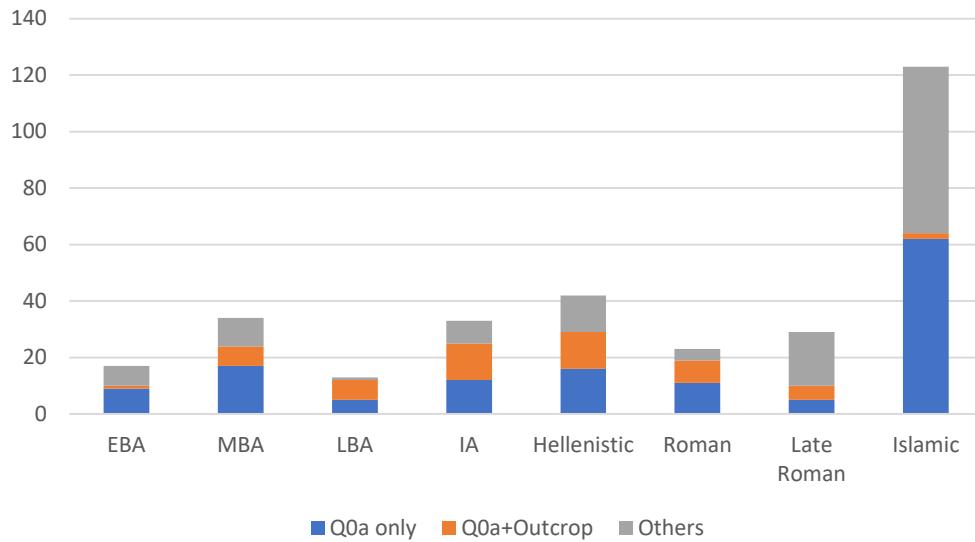
LOCAL IRON AGE
SETTLEMENT PATTERN
IN A BROADER CONTEXT



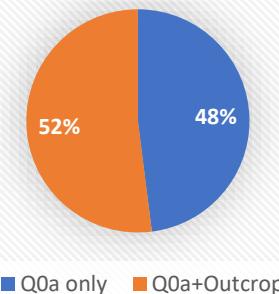
Results: Sites Location and Geomorphology



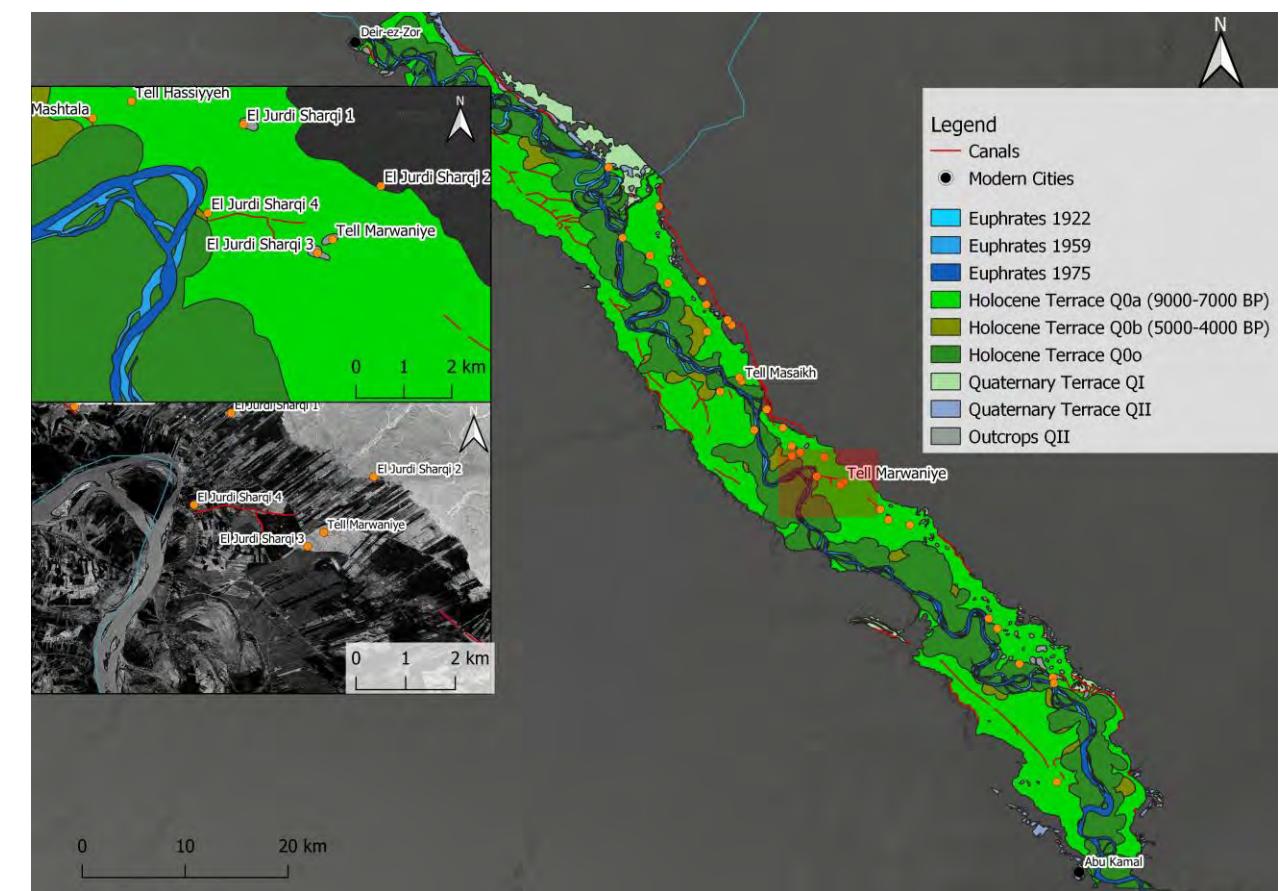
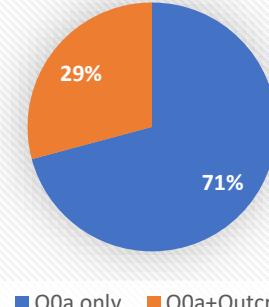
Number of sites on Geomorphological Unit per Period

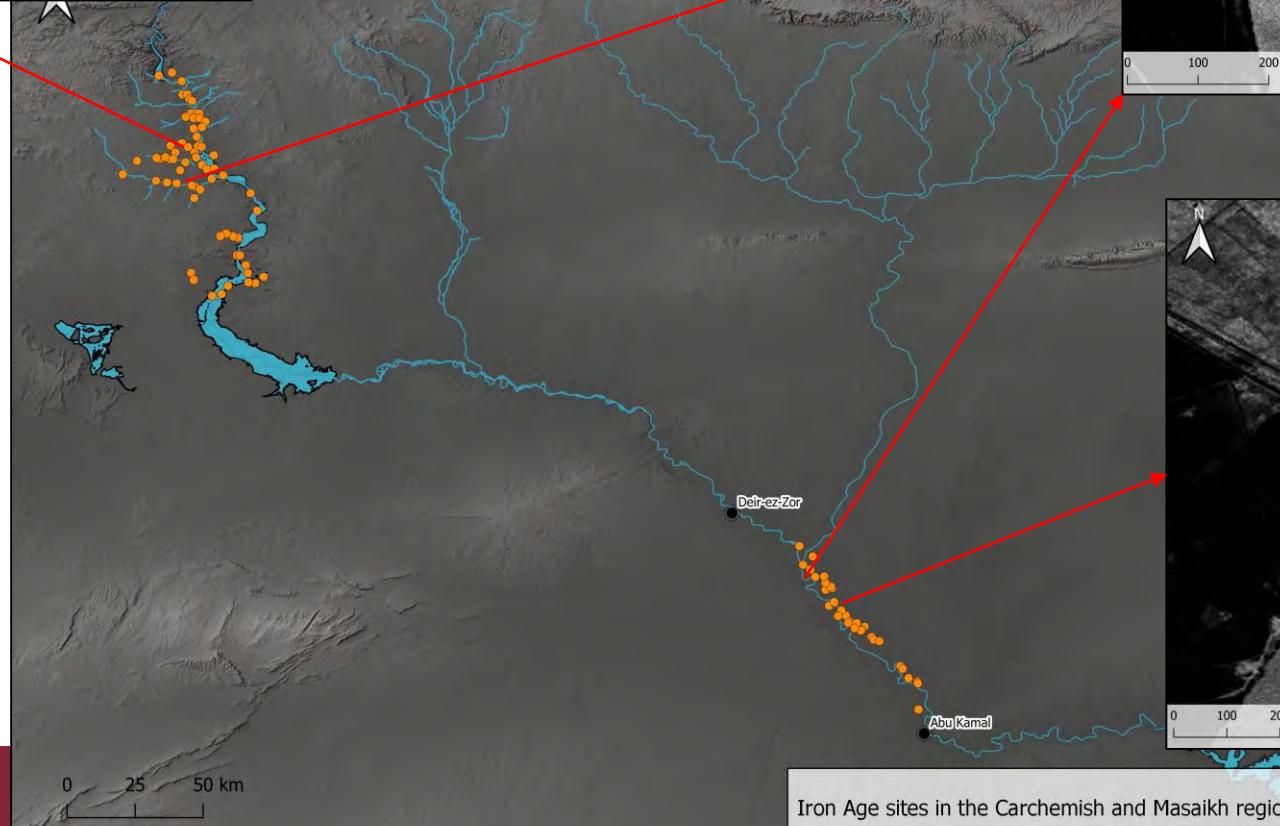


Distribution of sites on the Q0a Terrace during the Iron Age



Distribution of sites on the Q0a Terrace during the Middle Bronze Age



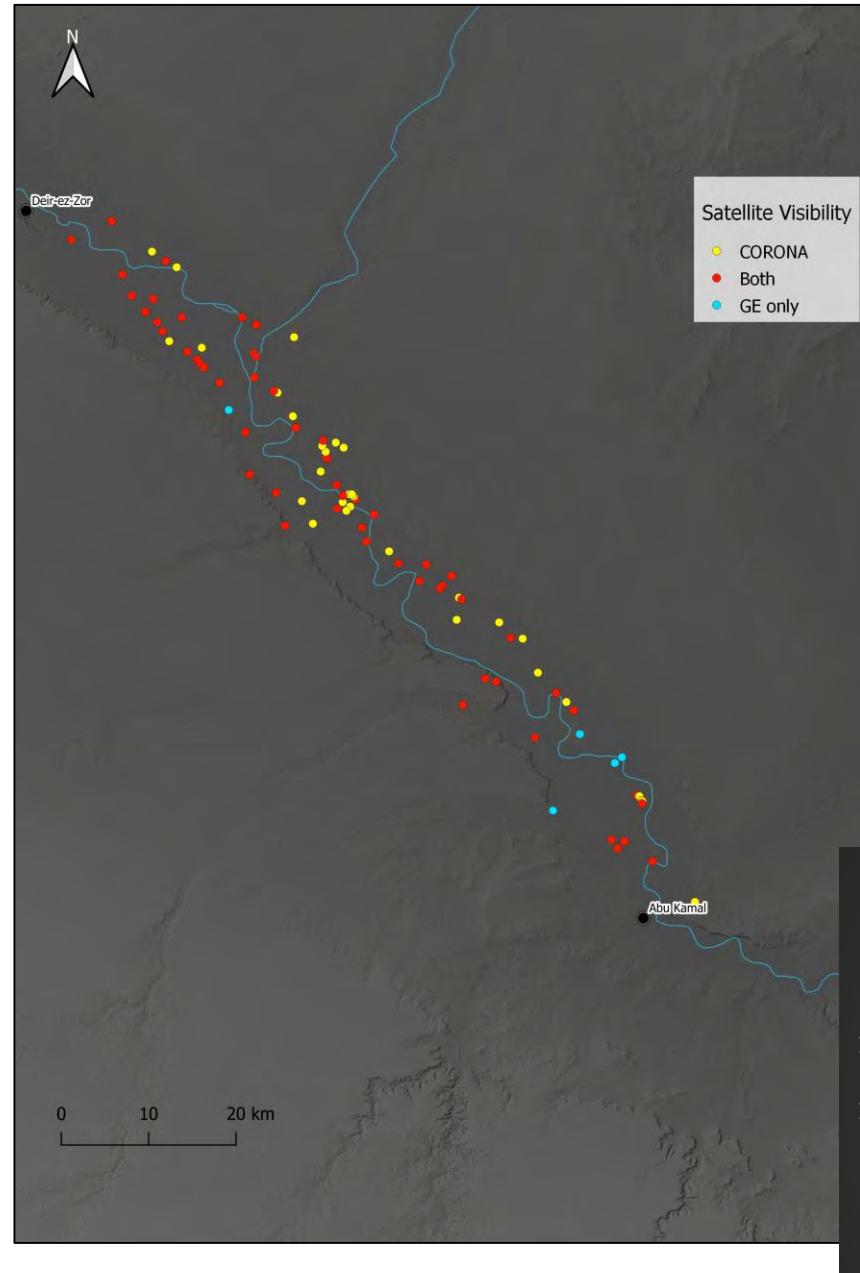
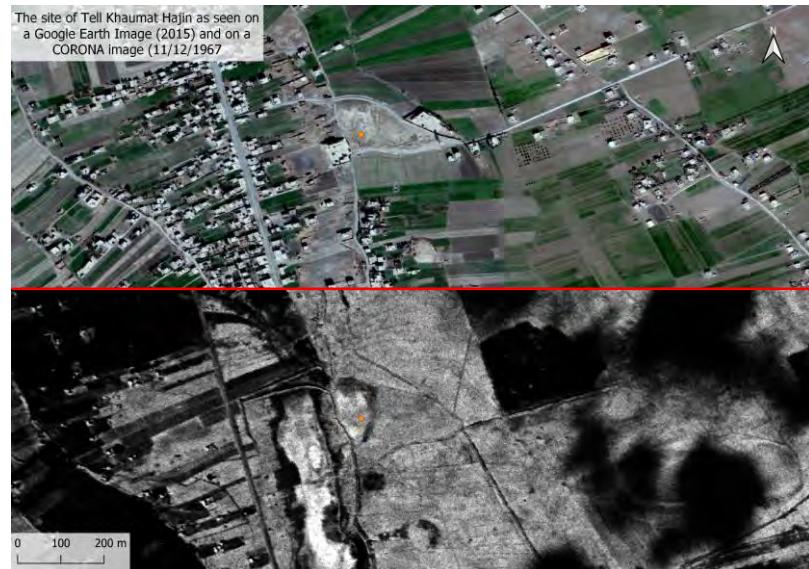


Results: Tells morphology

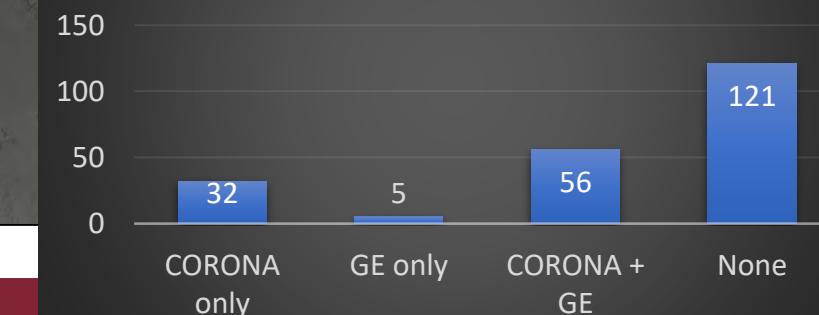
The site of Tell Masaikh as seen on a Google Earth Image (2015) and on a CORONA image (11/12/1967)



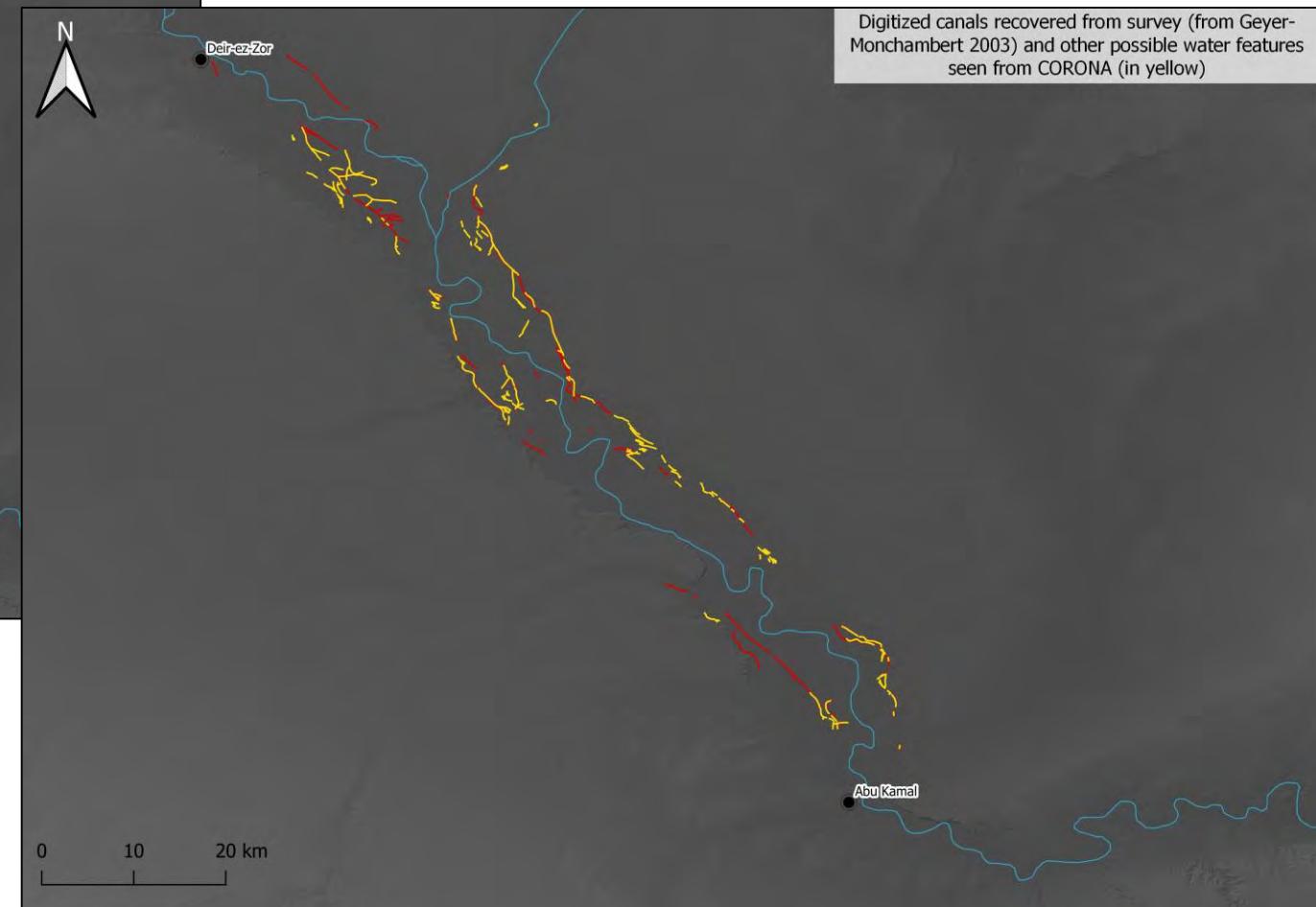
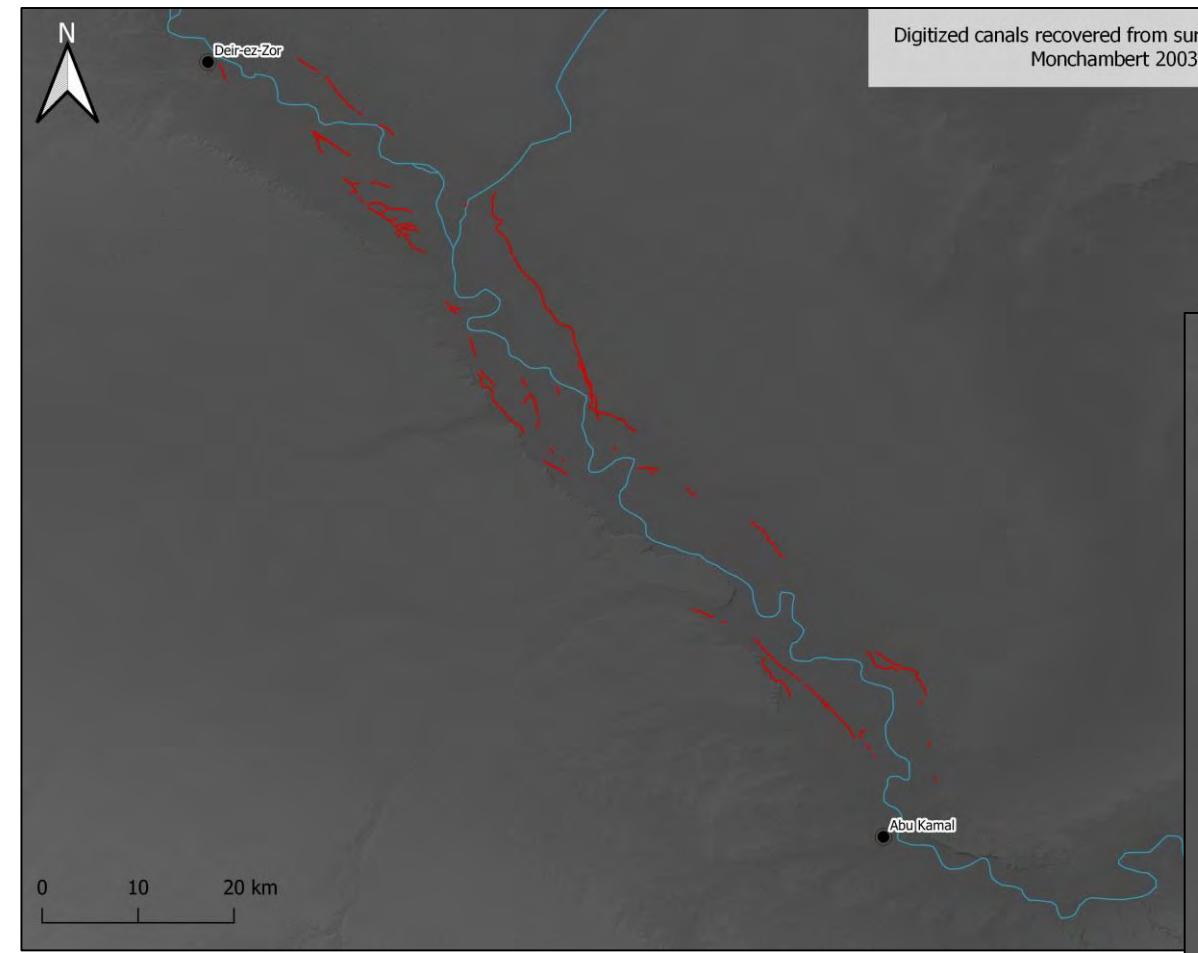
The site of Tell Khaumat Hajin as seen on a Google Earth Image (2015) and on a CORONA image (11/12/1967)



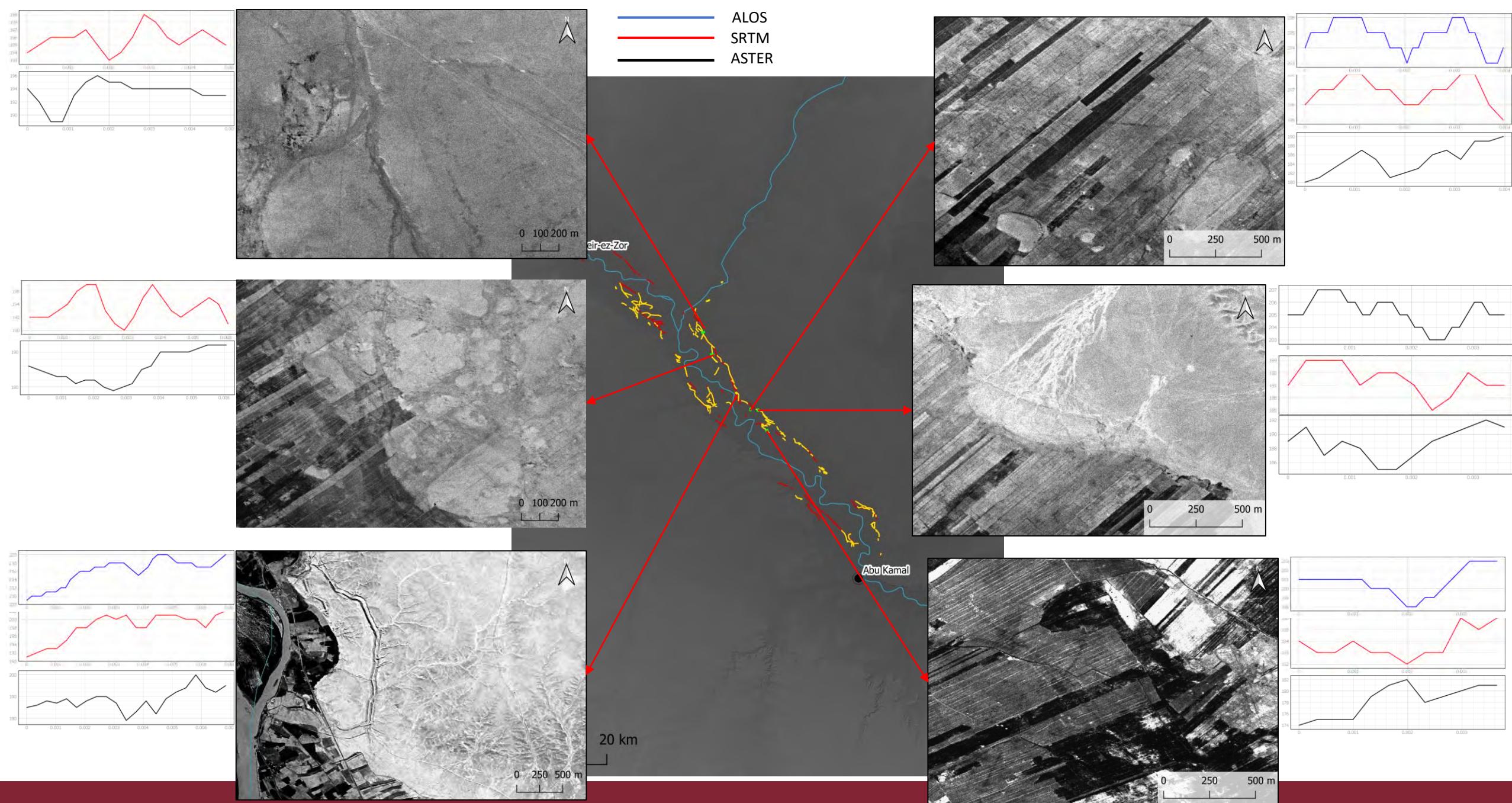
Sites Visible from Sat. Imagery



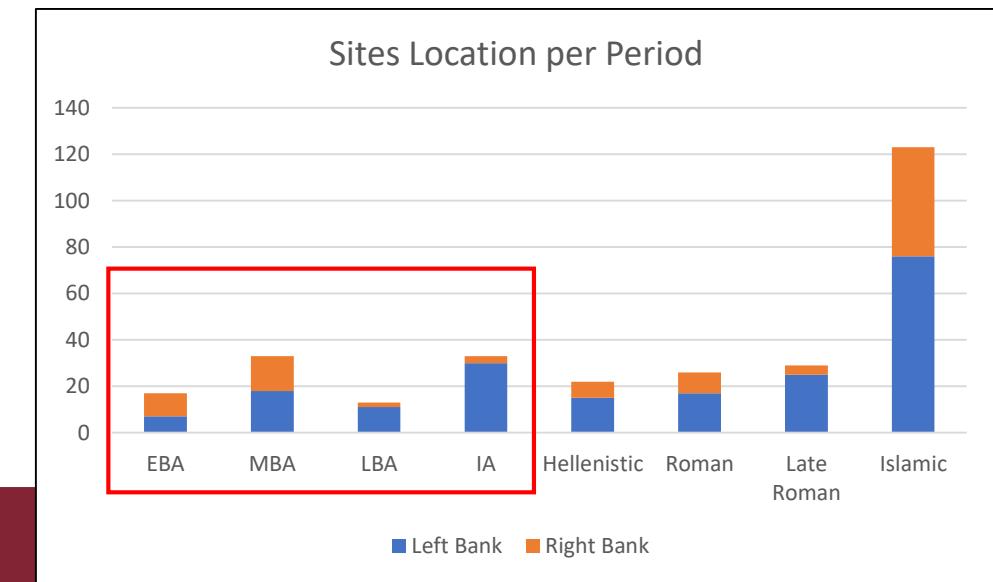
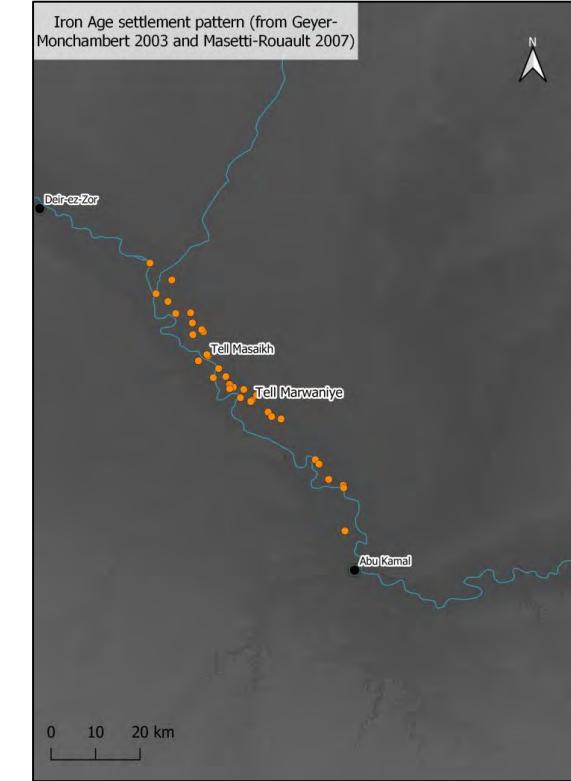
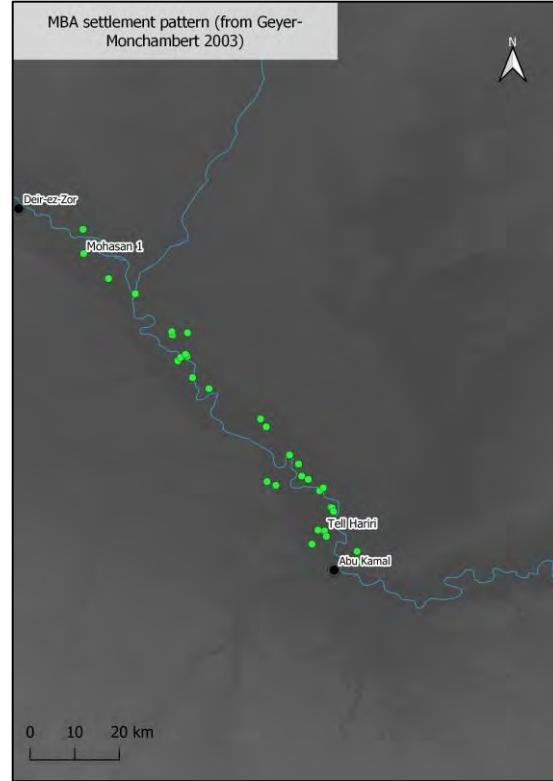
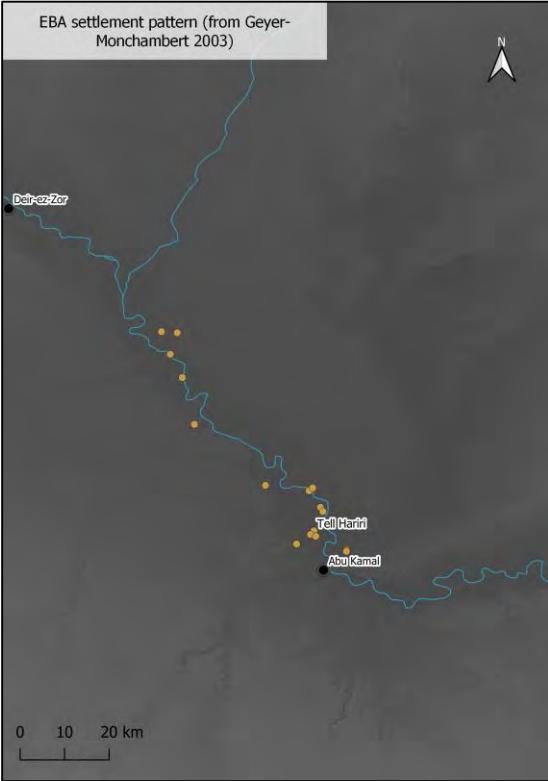
Results: Sites Survivability



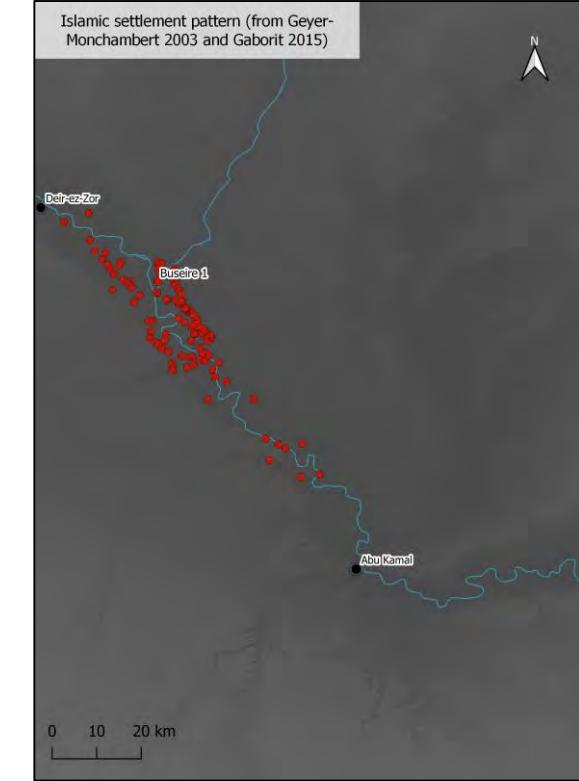
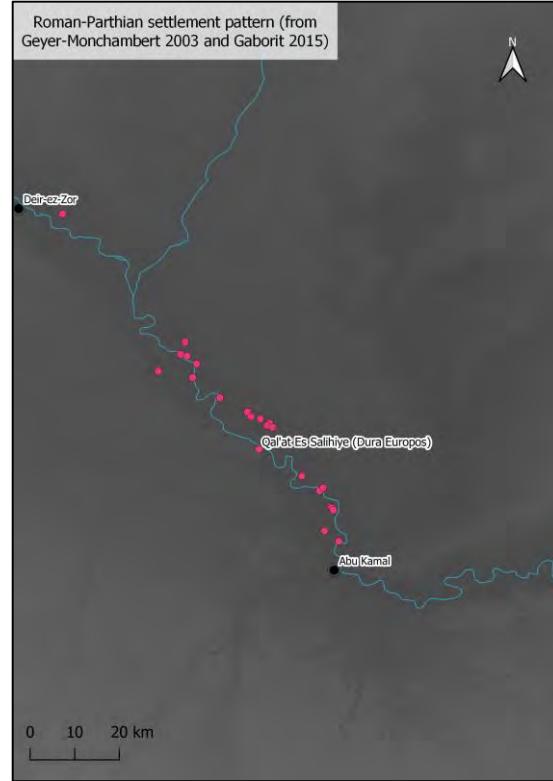
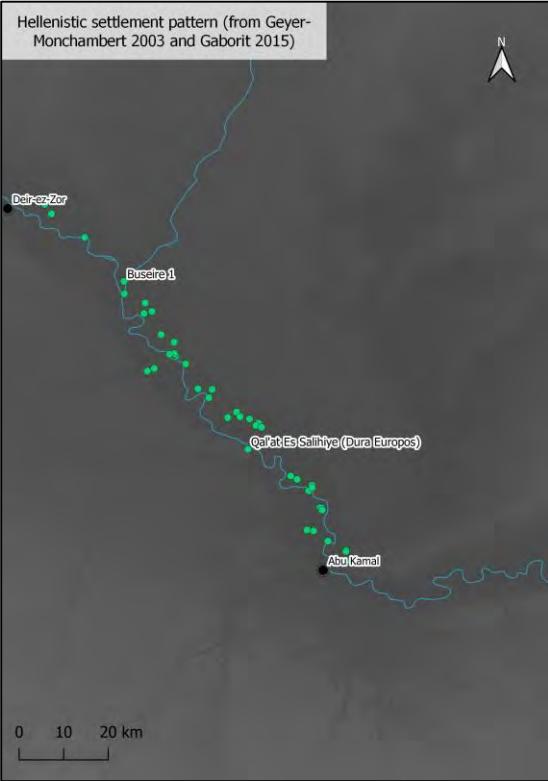
Results: Possible “Water” Features from CORONA



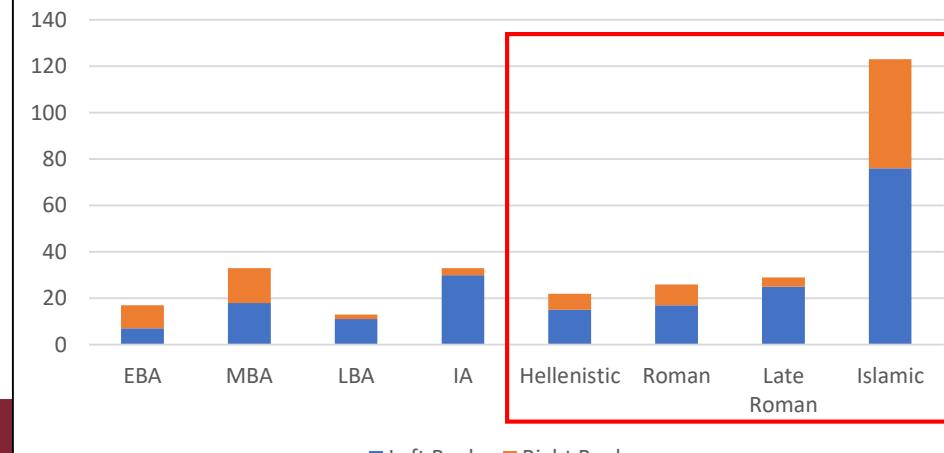
Results: Topographical Evaluation



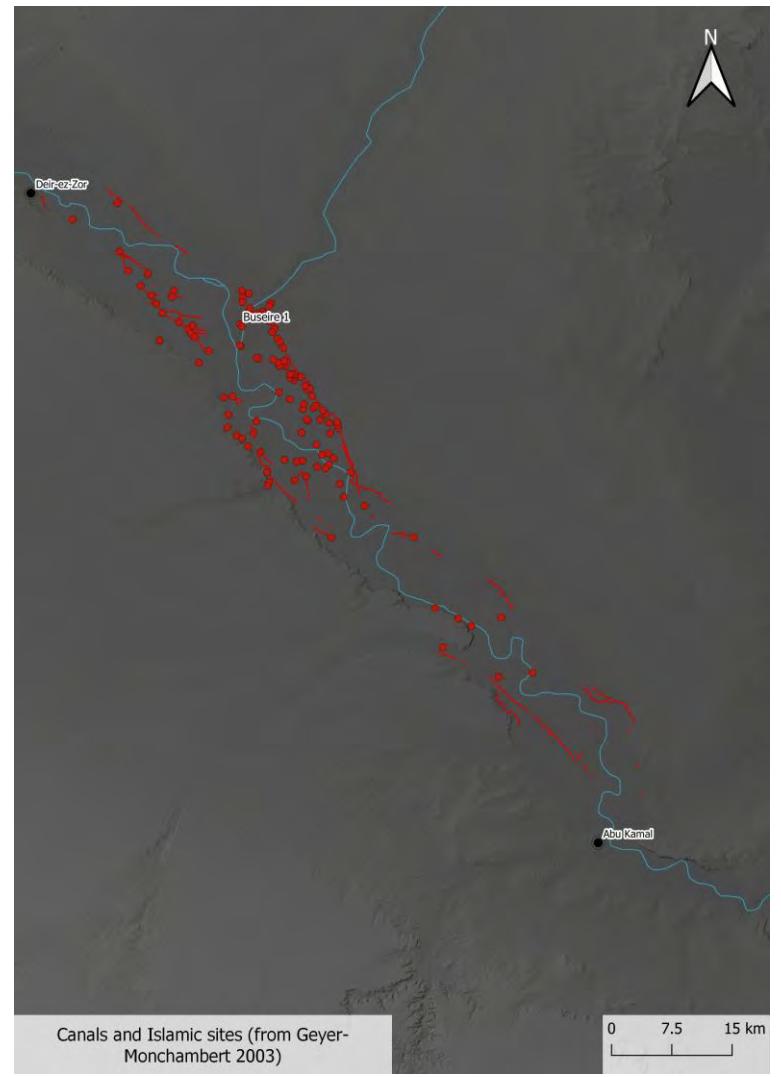
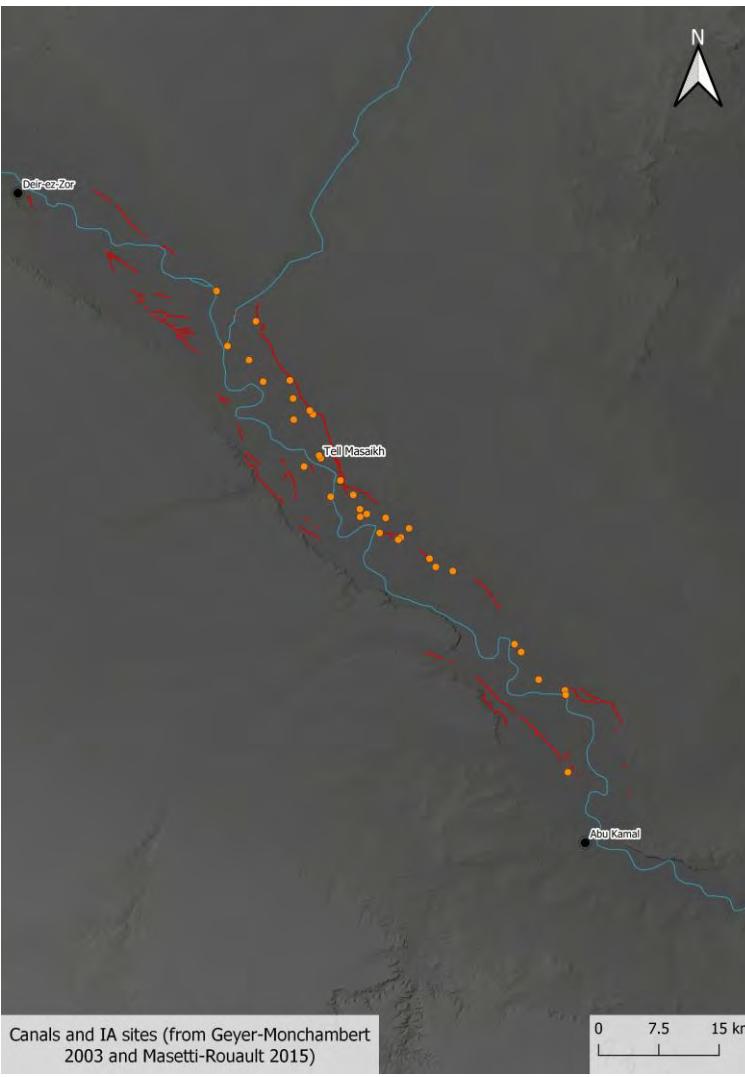
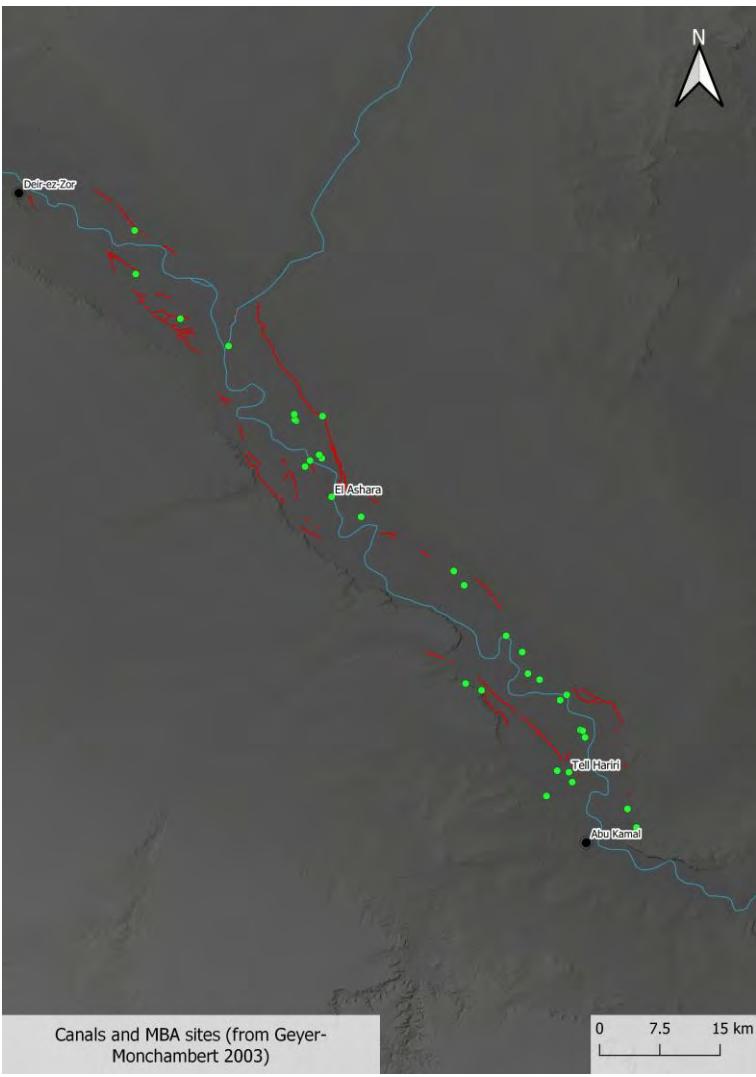
Results: Diachronic Settlement Patterns (EBA-IA)



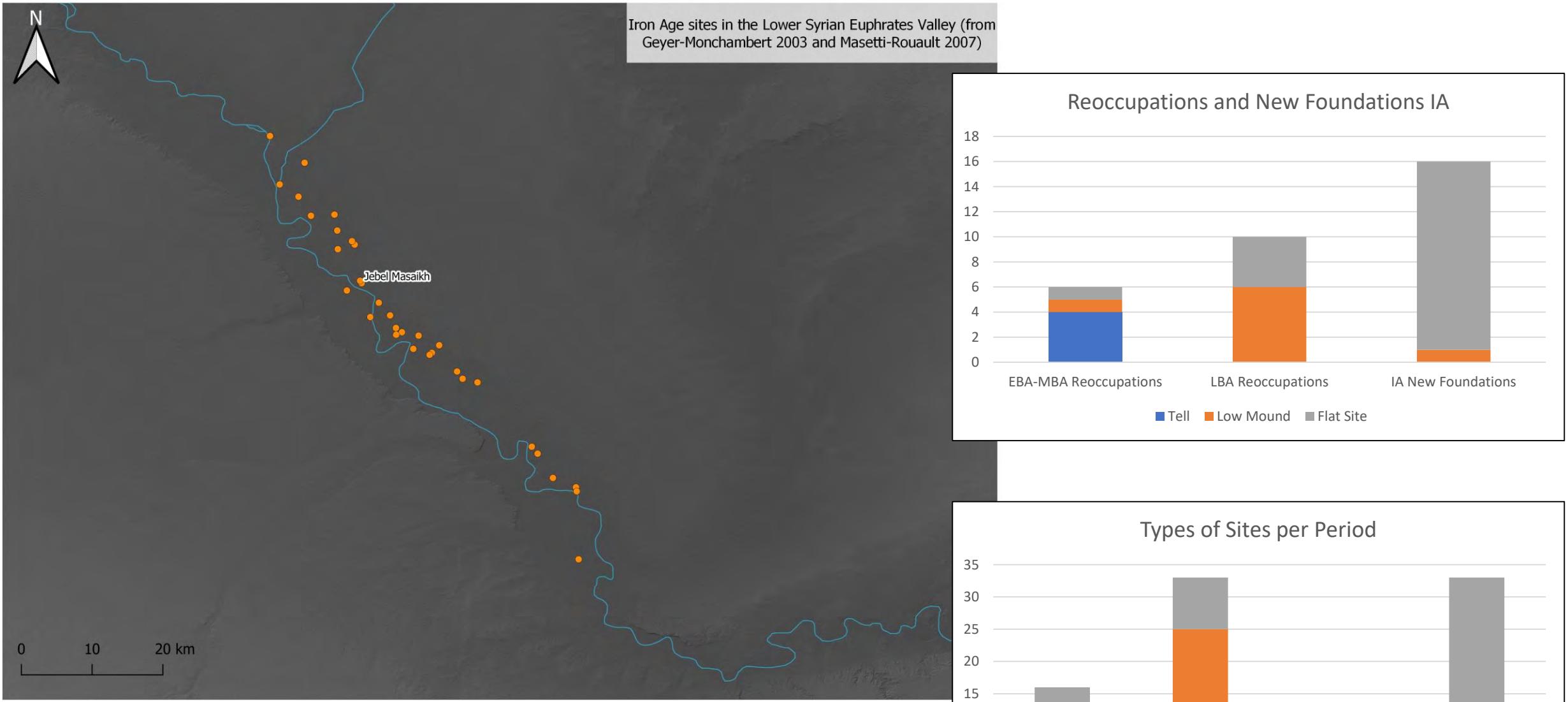
Sites Location per Period



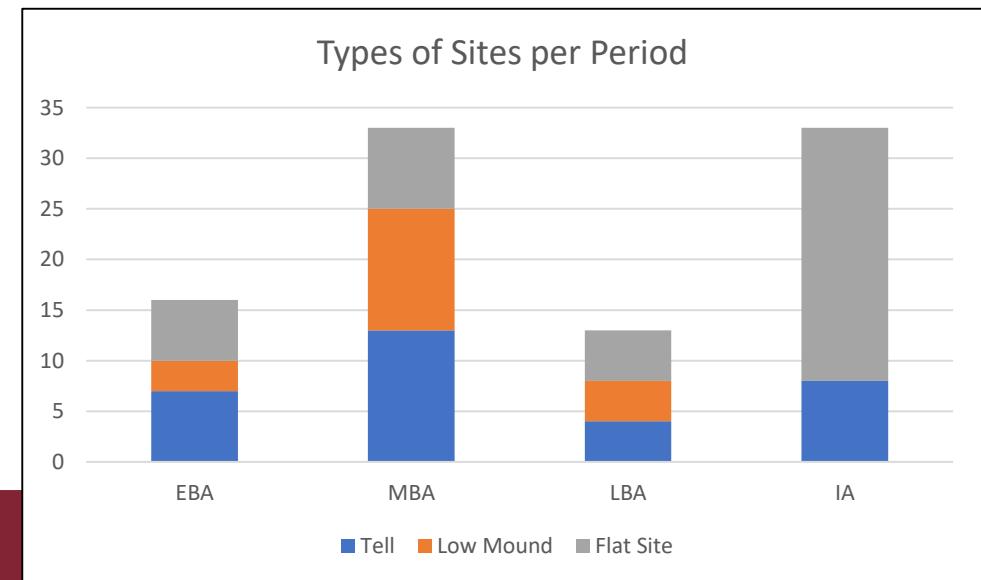
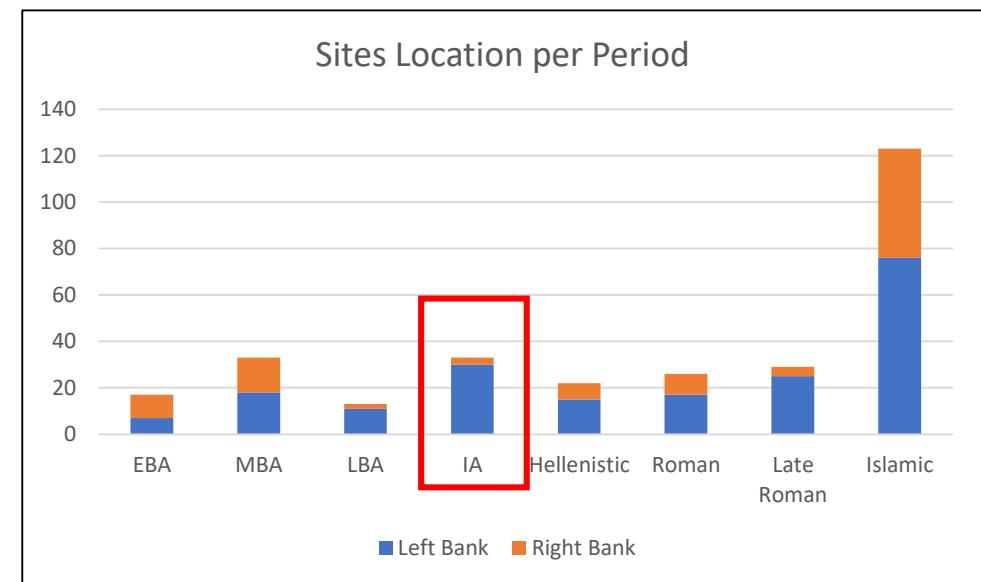
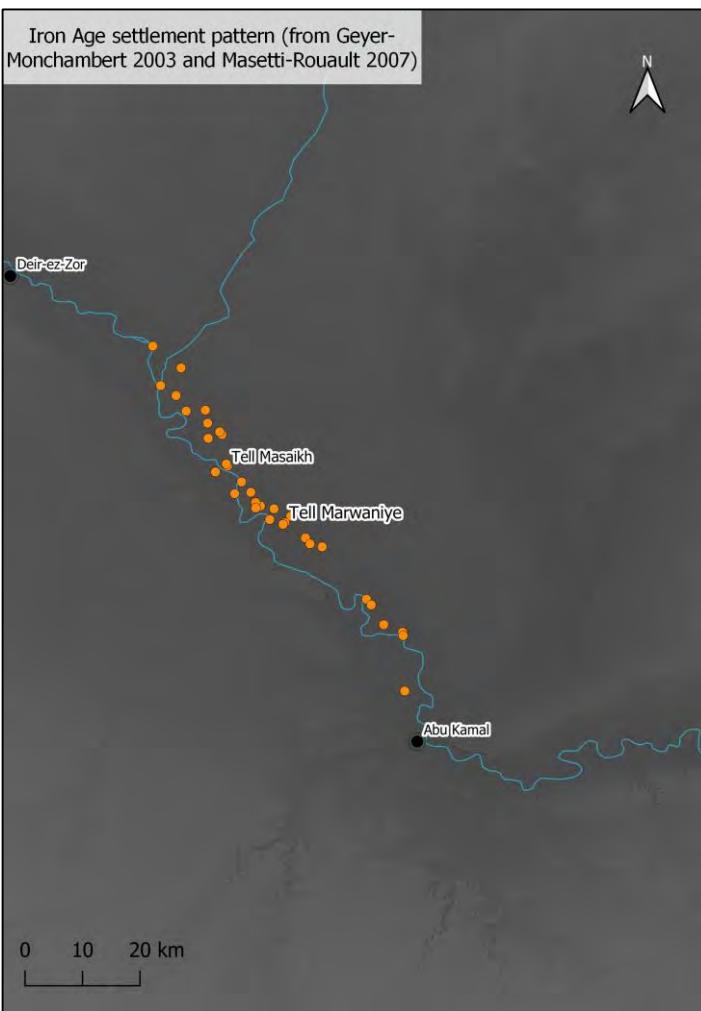
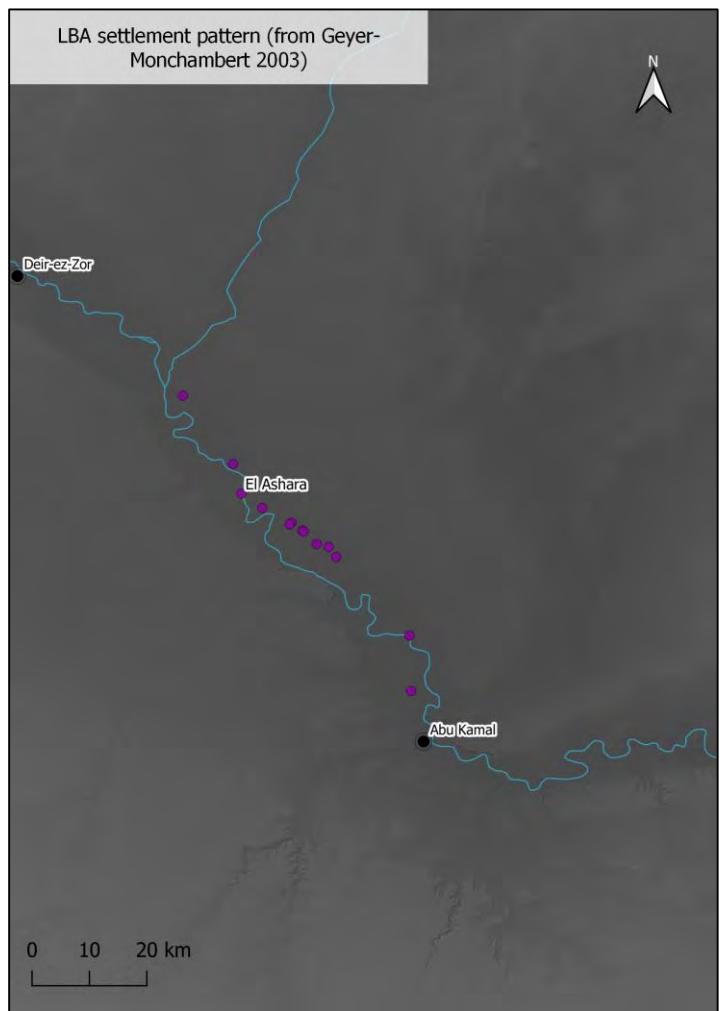
Results: Diachronic Settlement Patterns (Hellenistic – Islamic)



Results: Canals and Settlement Patterns



Results: Iron Age Settlement Patterns



Results: Iron Age Settlement Patterns

CONCLUSIONS

- Different site appearance on the imagery
- Survivability of sites
- Possible water features and check through DEM
- Relationship between sites and canals
- Iron Age Settlement Patterns and Ancient Near East Context
- DEM with Finer Resolution
- Older Imagery

