



Delineation of groundwater potential zones using non-invasive techniques to improve conceptual modelling of recharge in a non-instrumented weathered crystalline aquifer in South India

Madeleine Nicolas, Adrien Selles, Olivier Bour, Jean-Christophe Maréchal, S Chandra, A Mohanty, Mohamed-Salem Ahmed

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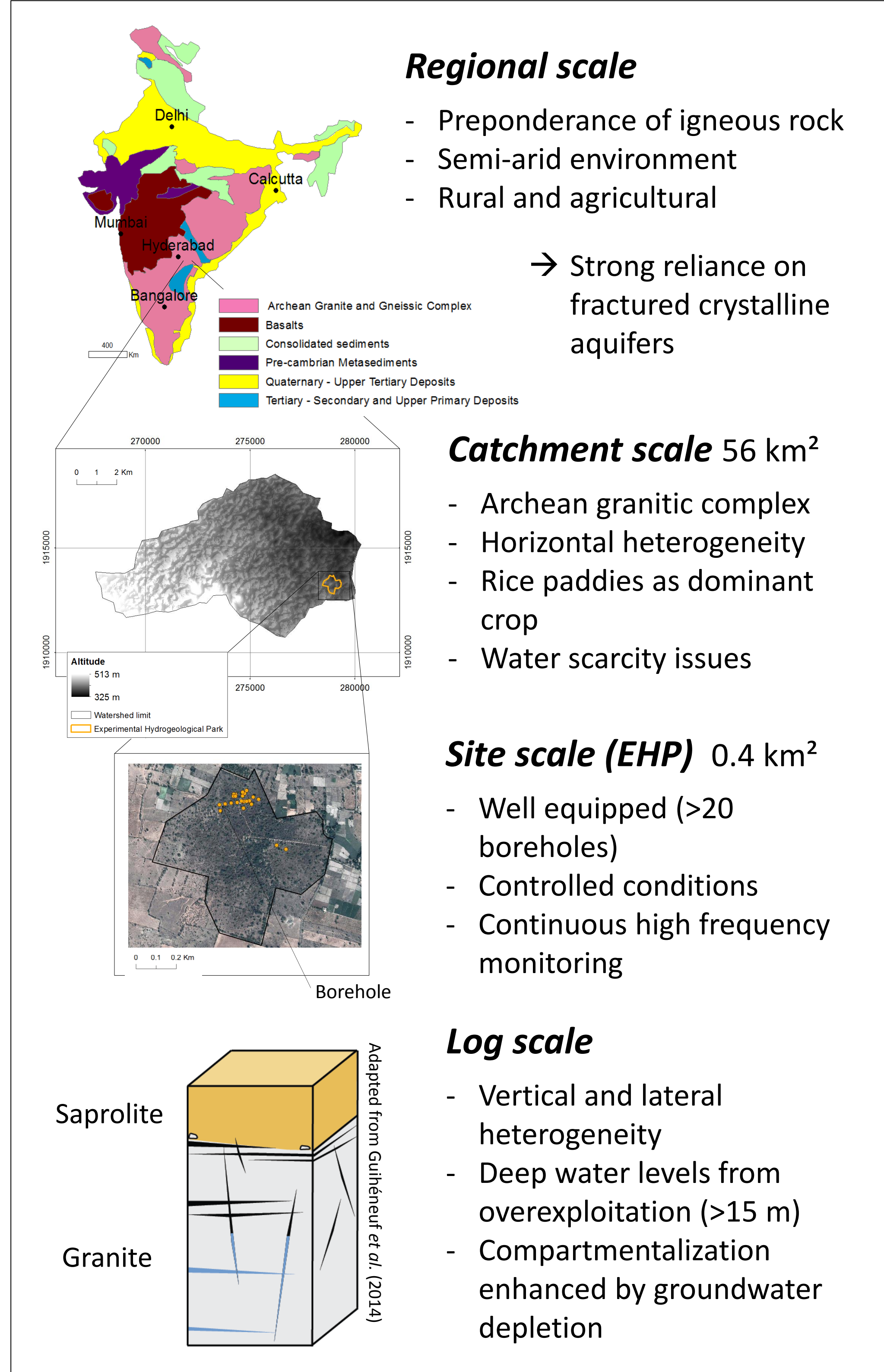
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Delineation of groundwater potential zones using non-invasive techniques to improve conceptual modelling of recharge in a non-instrumented weathered crystalline aquifer in South India

M. Nicolas ^{(1) (2)*}, Selles A. ⁽²⁾, Bour O. ⁽¹⁾, Maréchal J.C. ⁽³⁾, Chandra S. ⁽⁴⁾, Mohanty A. ⁽⁴⁾, Ahmed S. ⁽⁴⁾

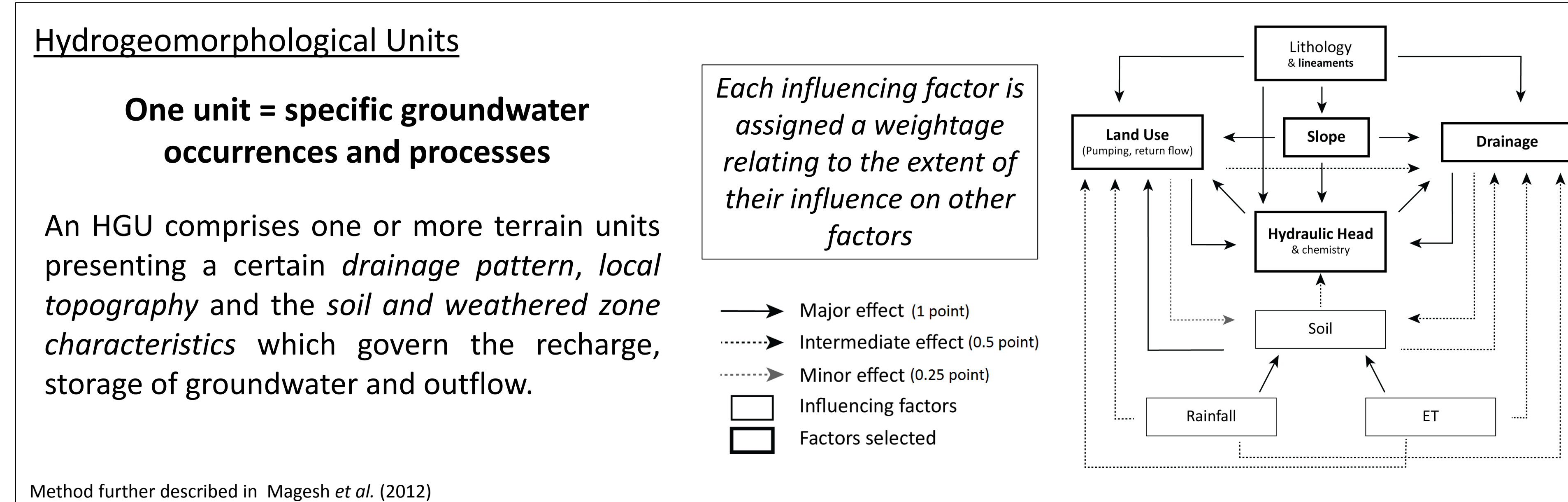
- When working in data-scarce areas, especially in heterogeneous environments, obtaining a sufficient amount of data to properly characterize hydrogeological fluxes is a crucial yet complicated task.
- Here we present the use of non-invasive techniques such as remote sensing and geophysics to delineate groundwater potential zones with distinctive characteristics and behaviour, emphasizing large scale surface data
- In term, this will allow us to create spatially distributed input parameter sets to improve conceptual modelling of groundwater recharge

Context

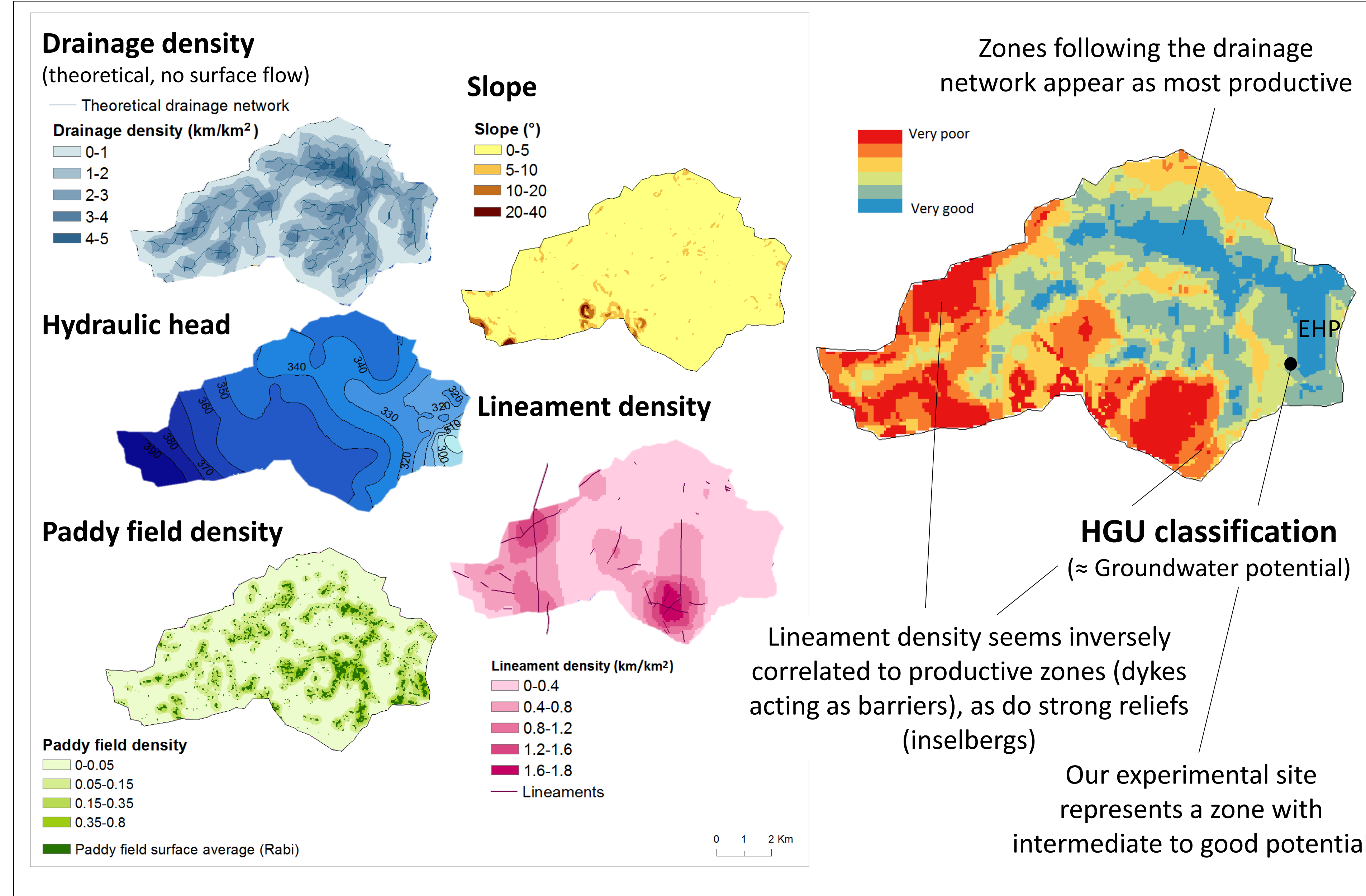


- ❖ How is the EHP study site representative of catchment scale properties ?
- ❖ Can *surface* characteristics be used as a proxy to map *groundwater* characteristics ?
- ❖ Can we optimize data collection to improve conceptual modelling of groundwater processes and recharge ?

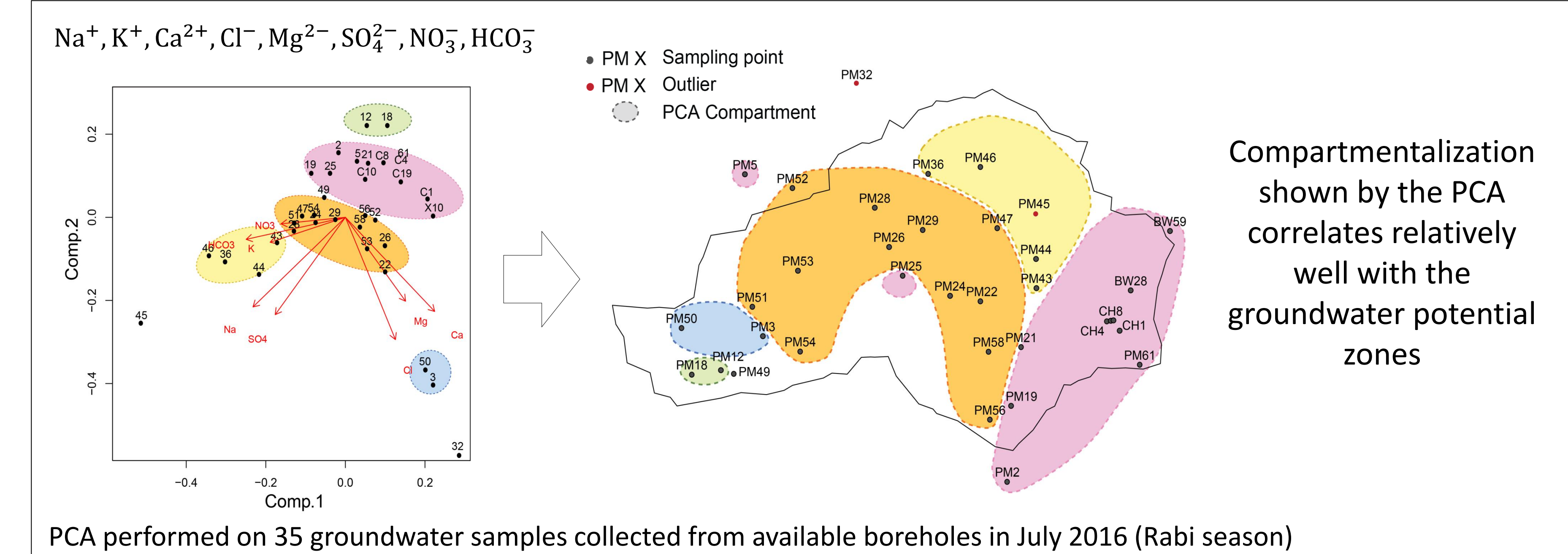
HGU delimitation – Methodology



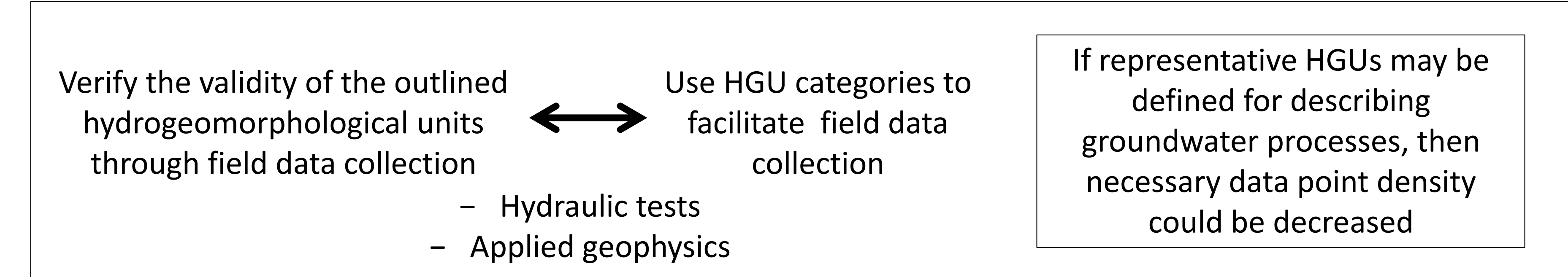
HGU delimitation - Application



Correlation with groundwater compartmentalization



Verification through complementary field data collection



Conclusion

Surface characteristics correlate with groundwater compartments

This finding is encouraging regarding the establishment of proxies from surface data for groundwater model parameters

Overall, separating a catchment into HGUs, for which validation is necessary through data collection, is a promising method to allow reservoir model calibration in heterogeneous non-instrumented environments

Perspective: conceptual modelling

Objective: Create a conceptual model whose parameters are defined within each HGU category and which can be calibrated with hydraulic head (as there is no perennial discharge)

Establish proxies for reservoir model parameters using **remote sensing** and optimized **field data** collection

Calibration on a well-instrumented watershed with marked heterogeneity and where long-term piezometric time series are available