

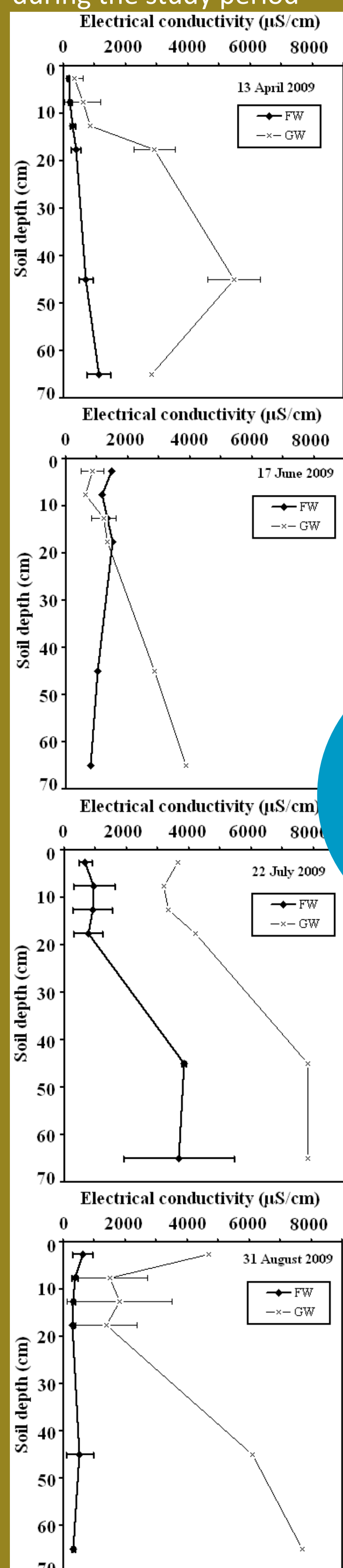
“Freshwater transport”: Evaluation of a local strategy for production increase under salinity conditions (Maggana, Greece)

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Introduction

Objectives of this study were to evaluate a traditional strategy for production increase in the east Nestos delta. For this reason two field sites, cultivated by the same farmer (similar management practices), were studied in detail. Aim of the field work was to quantify the effects of using surface freshwater compared to saline groundwater for land irrigation in the hotspot region.

Evolution of soil salinity during the study period



Surface water

EC (µS/cm)	581 (±322)
pH	7.39 (±0.07)
SAR	0.49
Ca ²⁺ (mg/L)	358 (±535)
Na ⁺ (mg/L)	35 (±8)
Mg ²⁺ (mg/L)	20 (±27)
K ⁺ (mg/L)	7 (±2)
Cl ⁻ (mg/L)	107 (±83)
SO ₄ ²⁻ (mg/L)	26 (±4)
NO ₃ ⁻ (mg/L)	2 (±1)

Groundwater

EC (µS/cm)	2247 (±103)
pH	7.50 (±0.17)
SAR	2.41
Ca ²⁺ (mg/L)	263 (±161)
Na ⁺ (mg/L)	172 (±3)
Mg ²⁺ (mg/L)	73 (±11)
K ⁺ (mg/L)	5 (±5)
Cl ⁻ (mg/L)	437 (±33)
SO ₄ ²⁻ (mg/L)	271 (±21)
NO ₃ ⁻ (mg/L)	8 (±1)

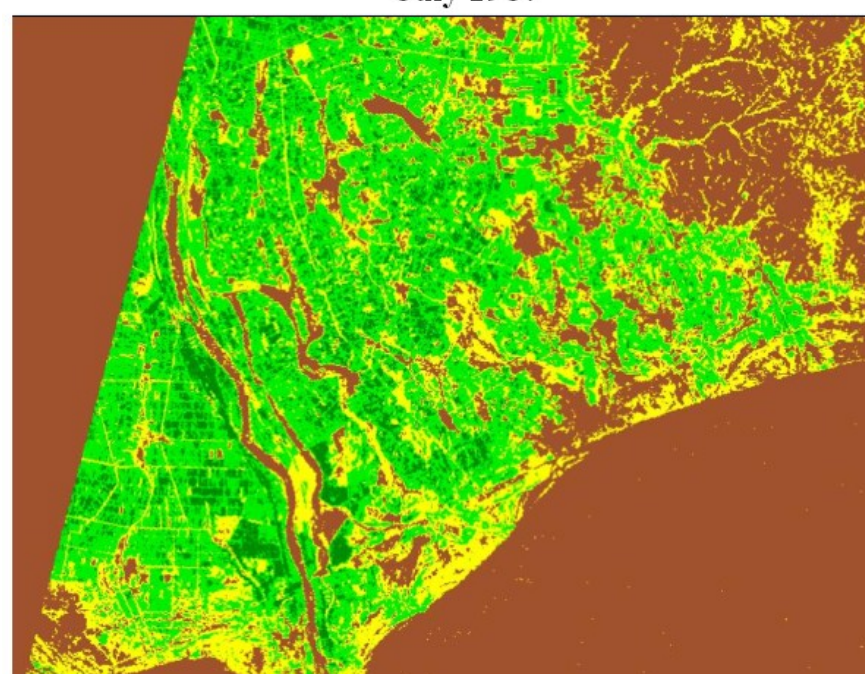
8 Mai 2009



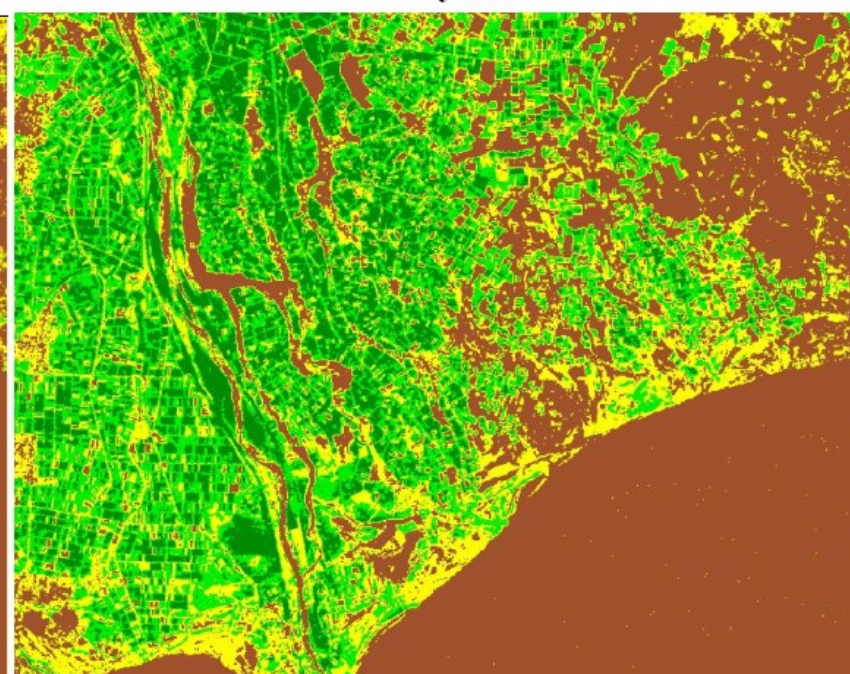
17 June 2009



July 1987



July 2001



Mapping soil desertification from satellite image analysis

Freshwater
YIELD = 9.3
tn/ha

Groundwater
YIELD =
3.4 tn/ha



Conclusions

- ❑ There is a considerable decrease (3 times lower) in total yield when groundwater is used for irrigation purposes.
- ❑ Freshwater is beneficial for productivity increase and should be urgently transported in the broader eastern Nestos Delta area.

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