

“A pinch of salt or a pound of cure”

Modeling salinity and drainage processes in the Río Dulce irrigation system

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THE RIO DULCE IRRIGATED AREA

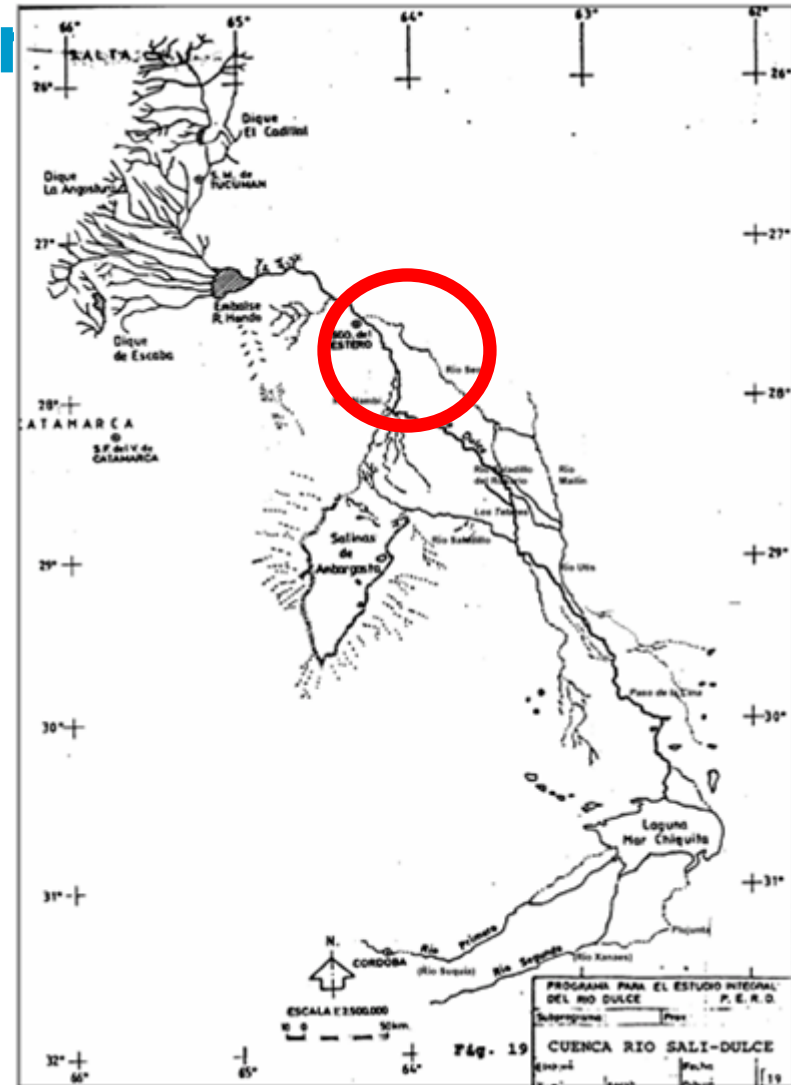


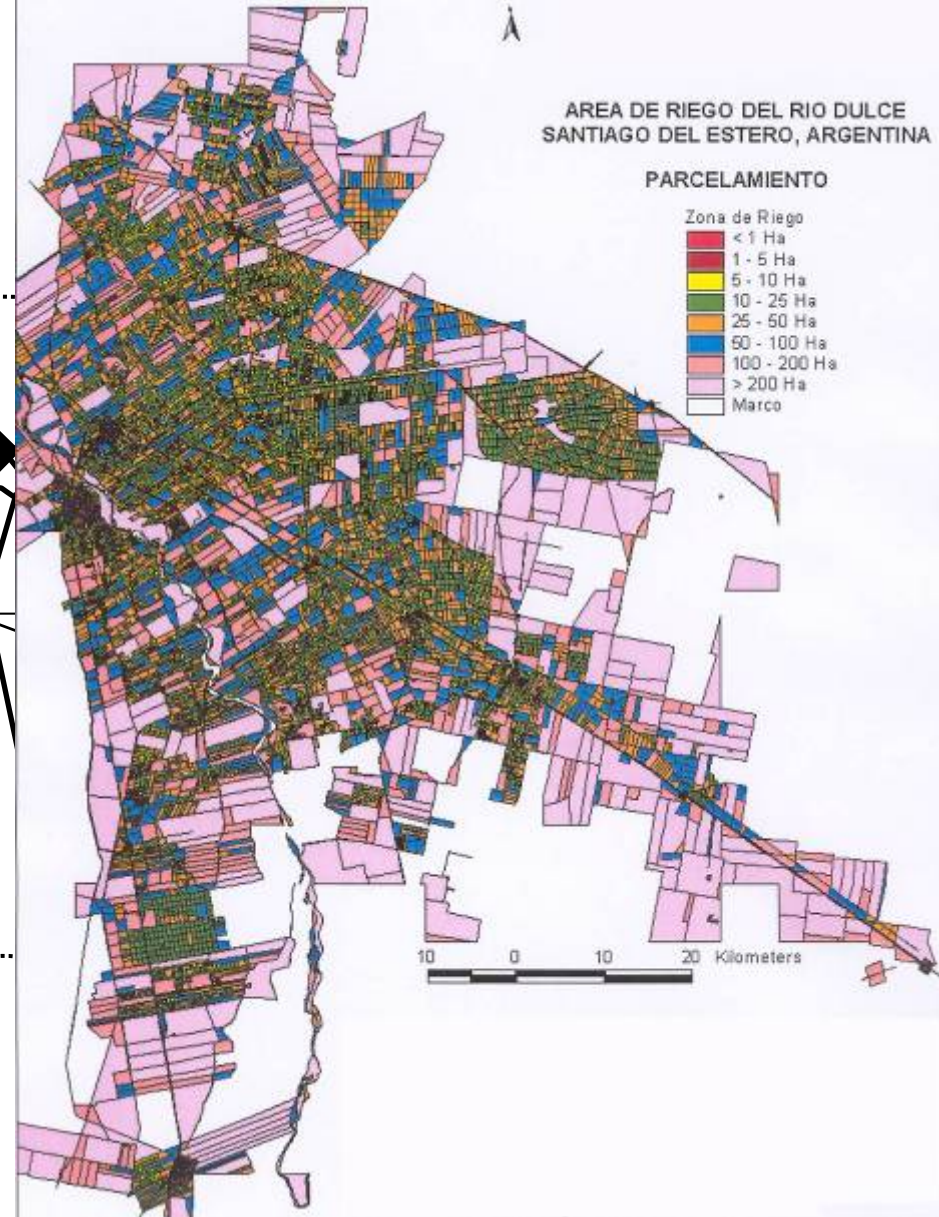
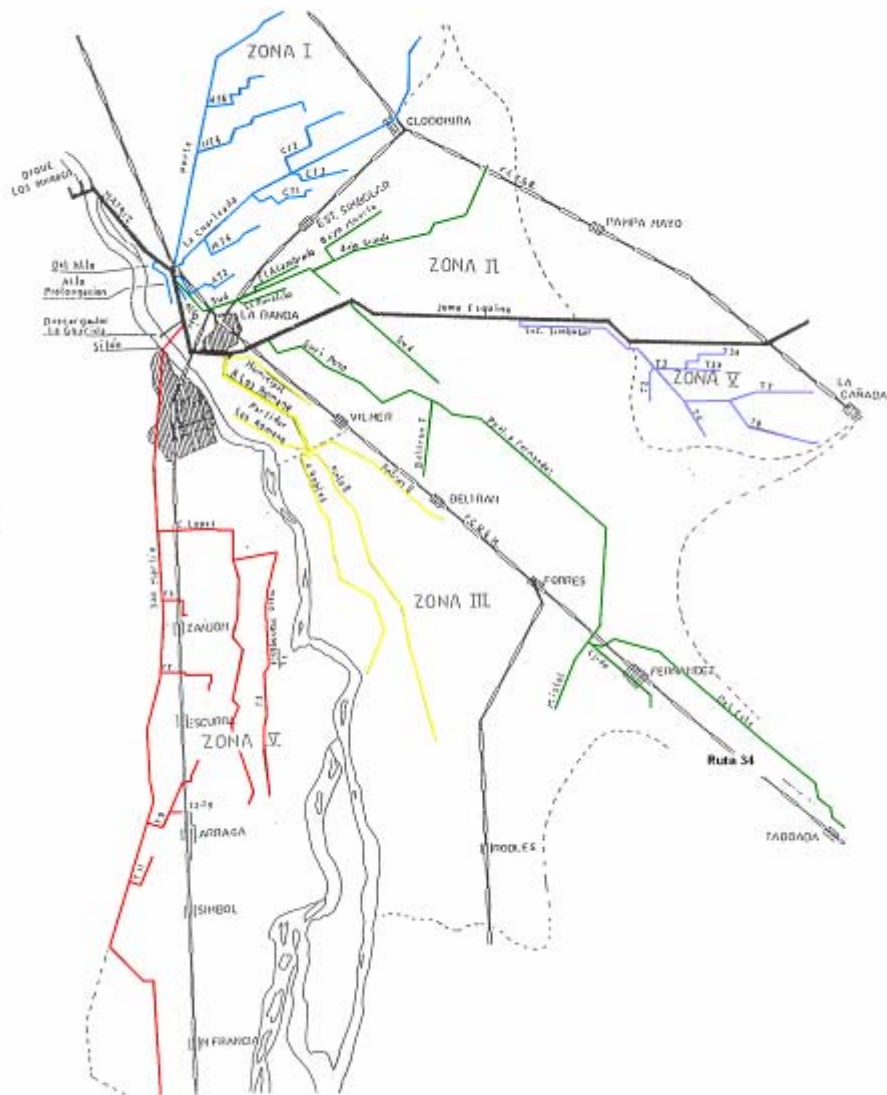
Proyecto Río
Dulce,
Argentina



The Río Dulce, Argentina

- Río Dulce basin 100,000 km²
- Proyecto Río Dulce 122,000 hectares irrigated
- PRD command area 350,000 hectares





Salinity

	Number of samples	Irrigated	Non-irrigated
Area 1	8	1.6	7.7
Area 2	5	1	16.7
Area 3	8	1	25.9

Salt concentrations in dS/m expressed in Electrical Conductivity of an extract of saturated soil paste.

Huge difference between irrigated and non-irrigated fields!!!!

Modeling

WASIM

(Wallingford/Cranfield)

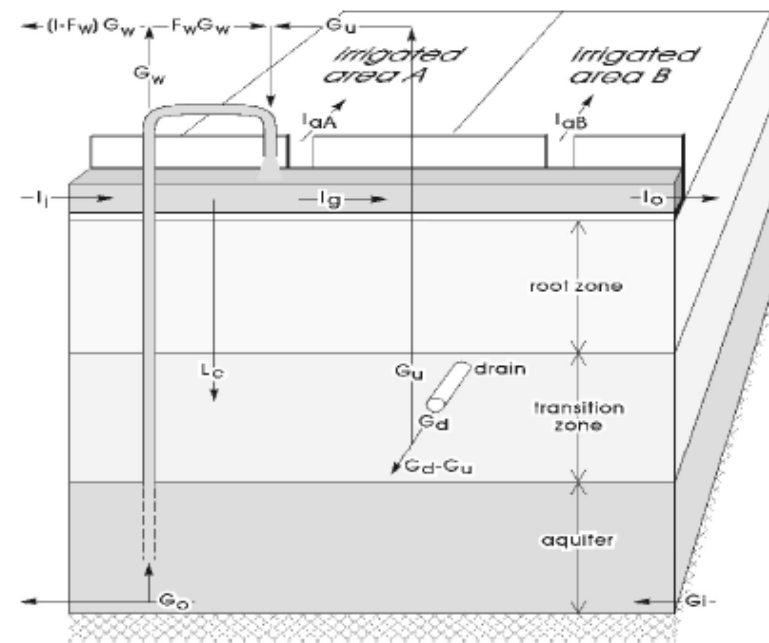
SALTMOD

(International Institute for Land
Reclamation and Improvement)

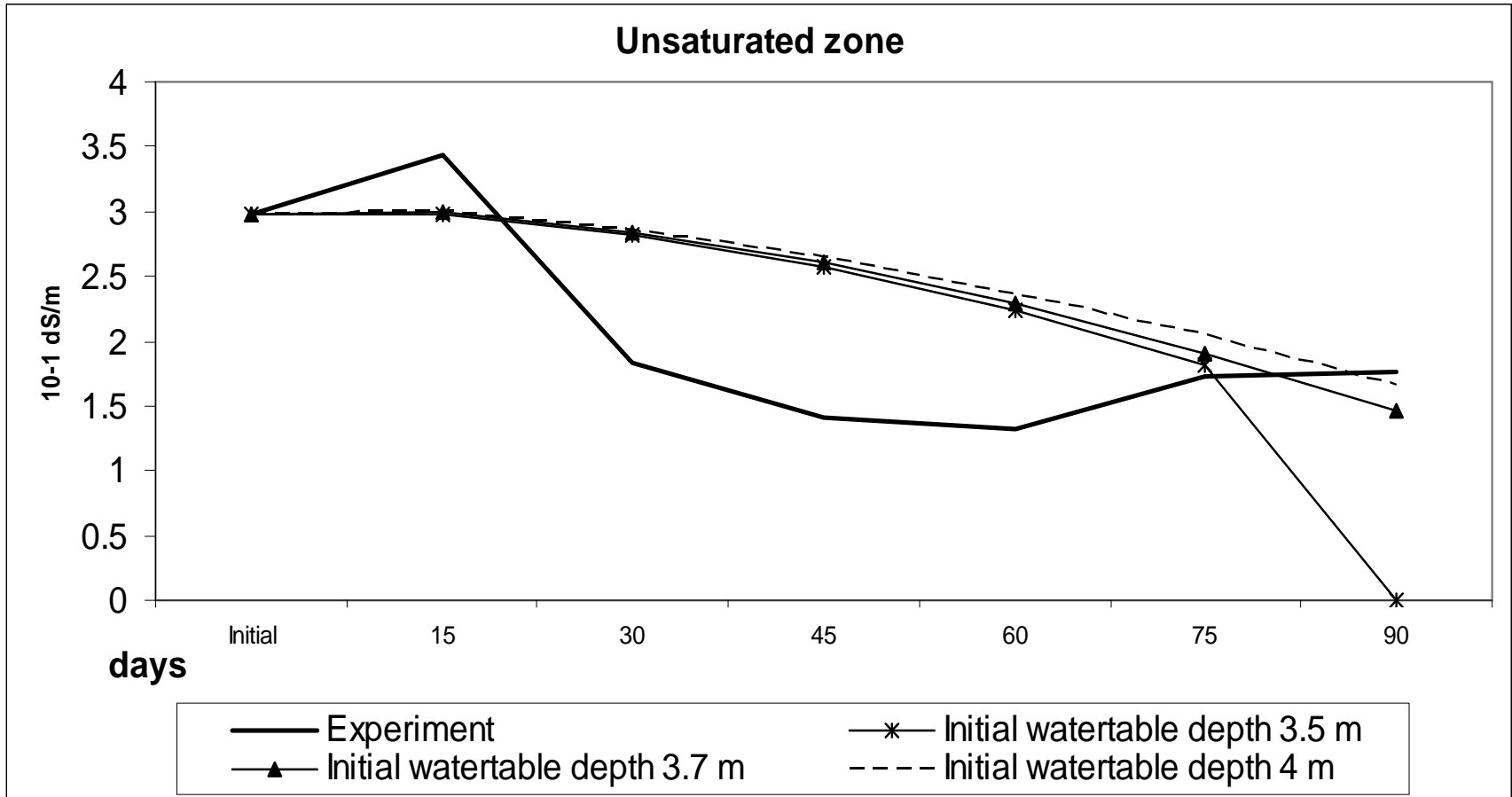
Important difference: time step

SALTMOD seasonal

WASIM daily

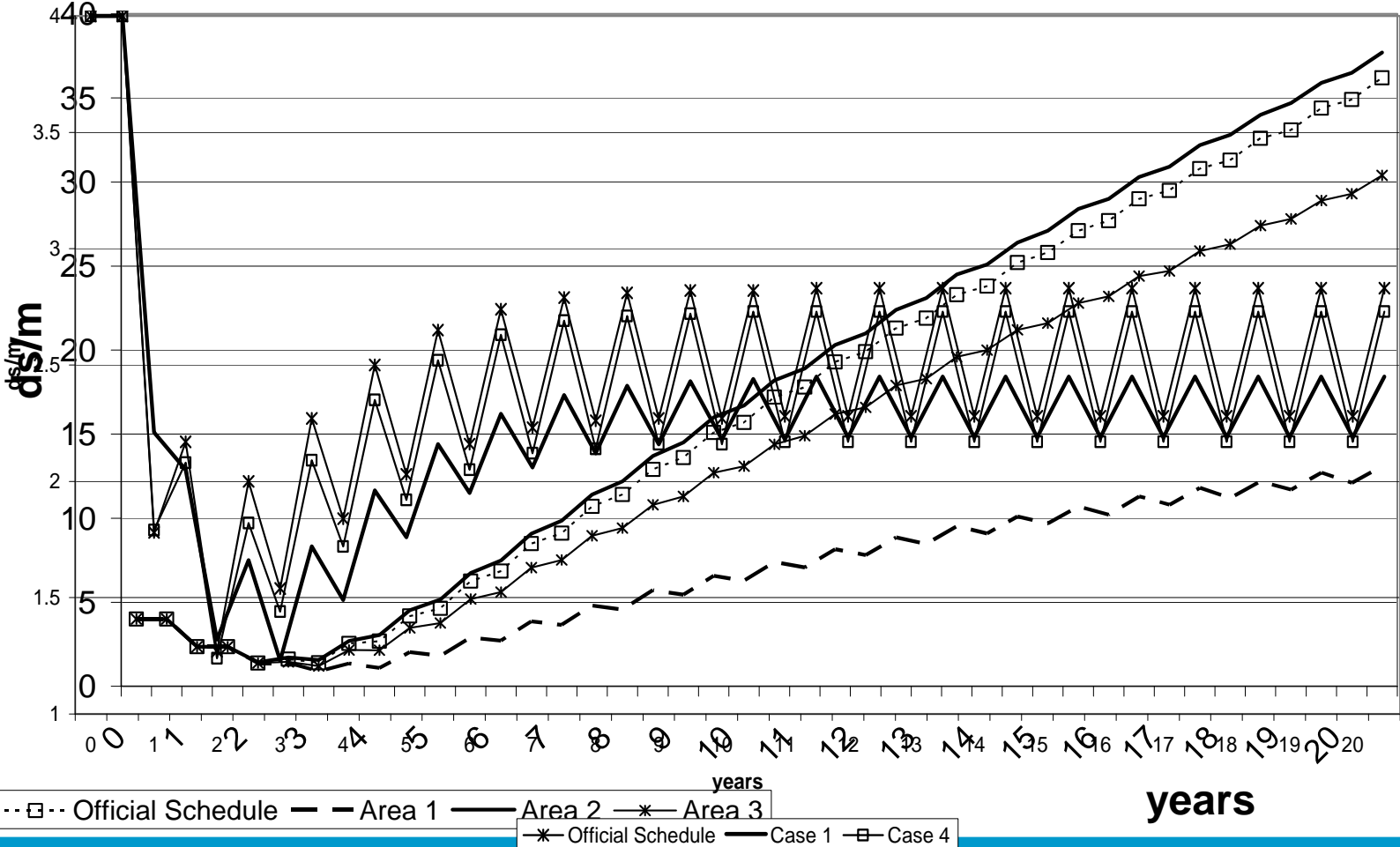


WASIM: modeling and field data

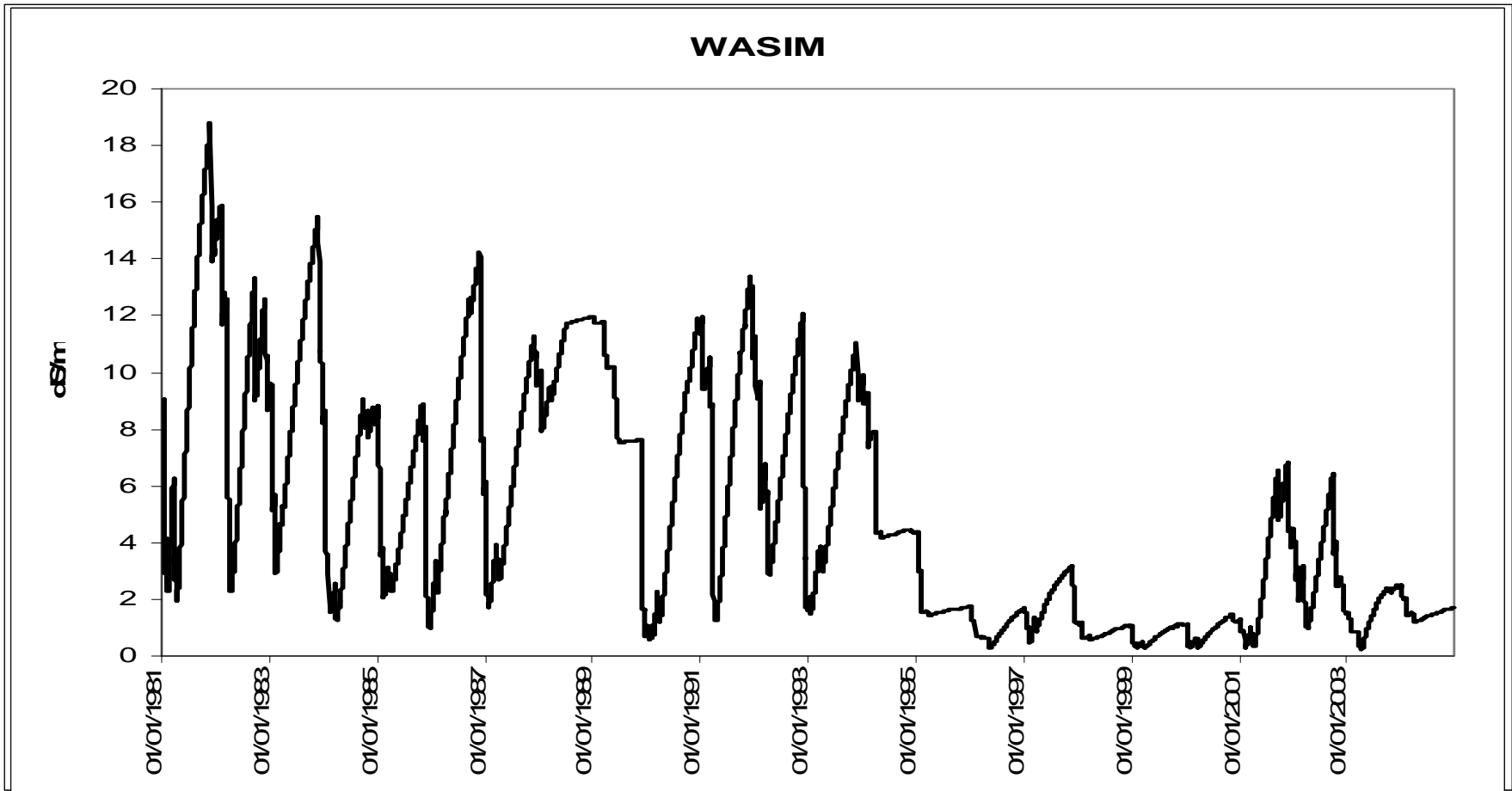


SALTMOD

Salinity Irrigated Field



Influence of drainage



Conclusions

- WASIM was able to reproduce both the evolution of the water table level during the experiment and salinity levels in the root zone, including resalinisation.
- SALTMOD is attractive because of its simplicity, using average inputs for all years may not yield as much insight as variable inputs would.
- WASIM shows variability over time. However, the need for daily data may hamper practical applicability.
- Using these models in combination, relatively modest field experiments and measurements would already yield important information
- **And one should not underestimate one huge advantage: both models are really good value for money. They give usable results and are freely available.**

