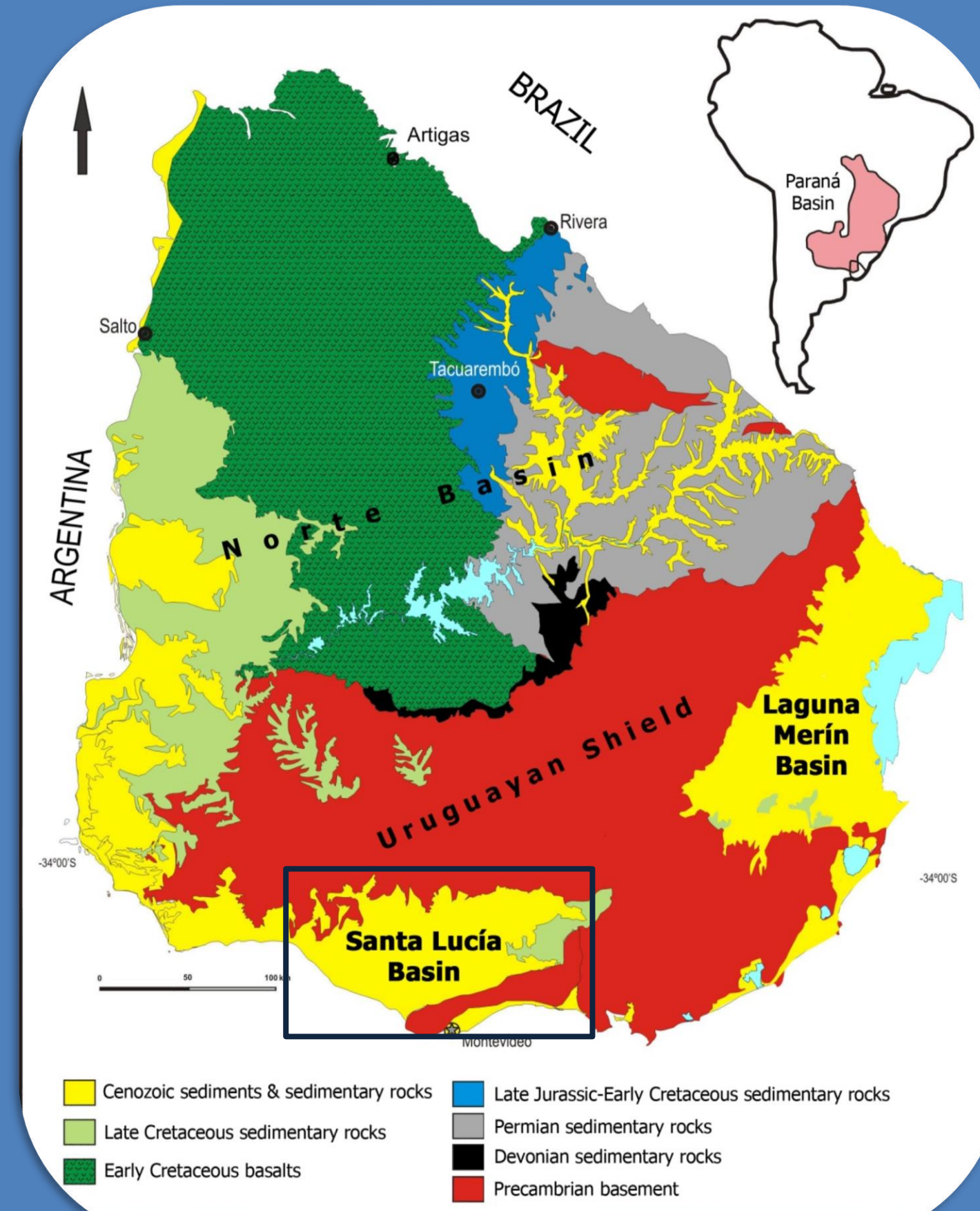


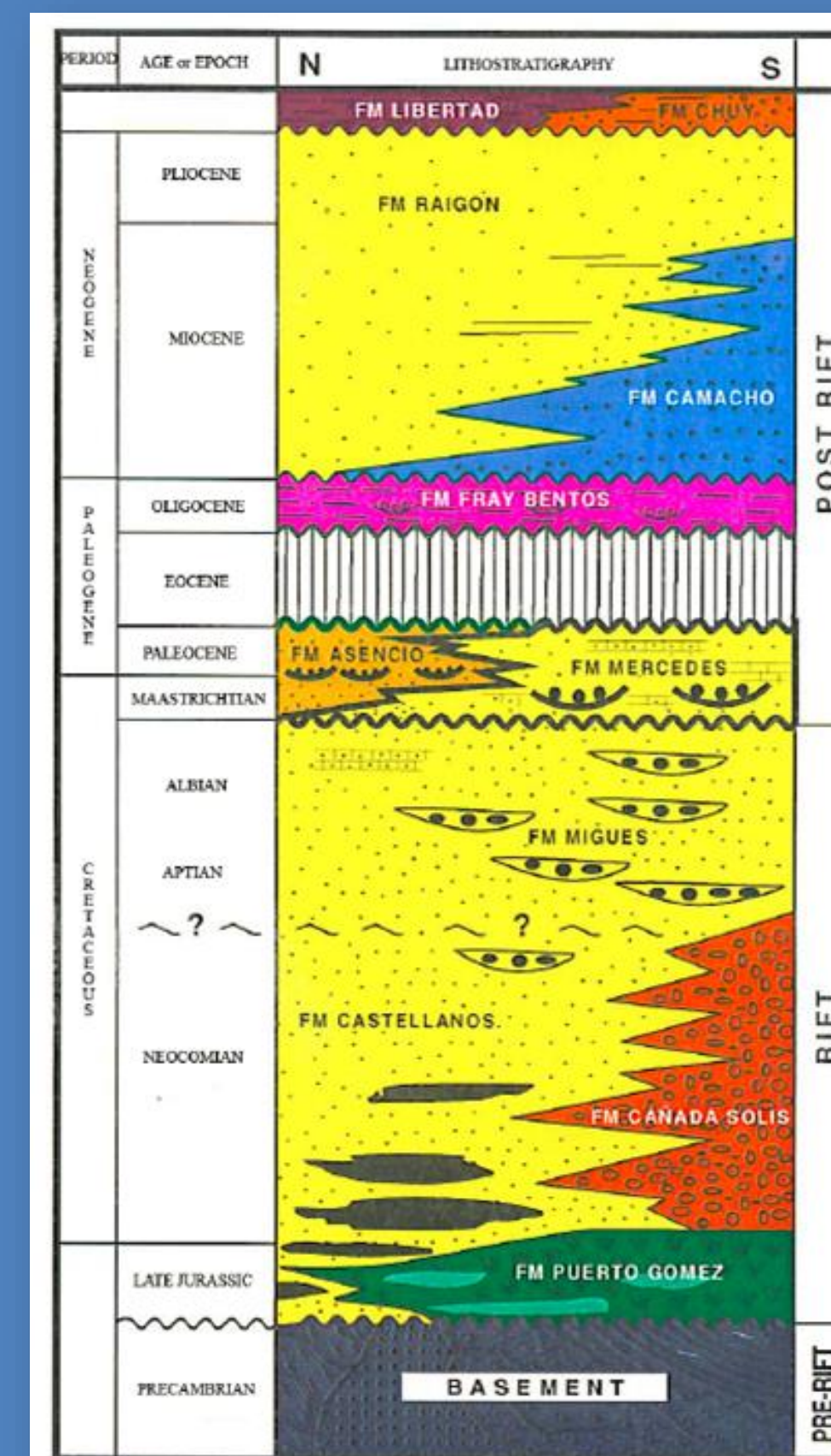
GEOLOGICAL CO₂ STORAGE POTENTIAL IN SANTA LUCIA BASIN, ONSHORE URUGUAY

TOMASINI, J.; CONTI, B.*; RODRÍGUEZ, P. & MARMISOLLE, J.

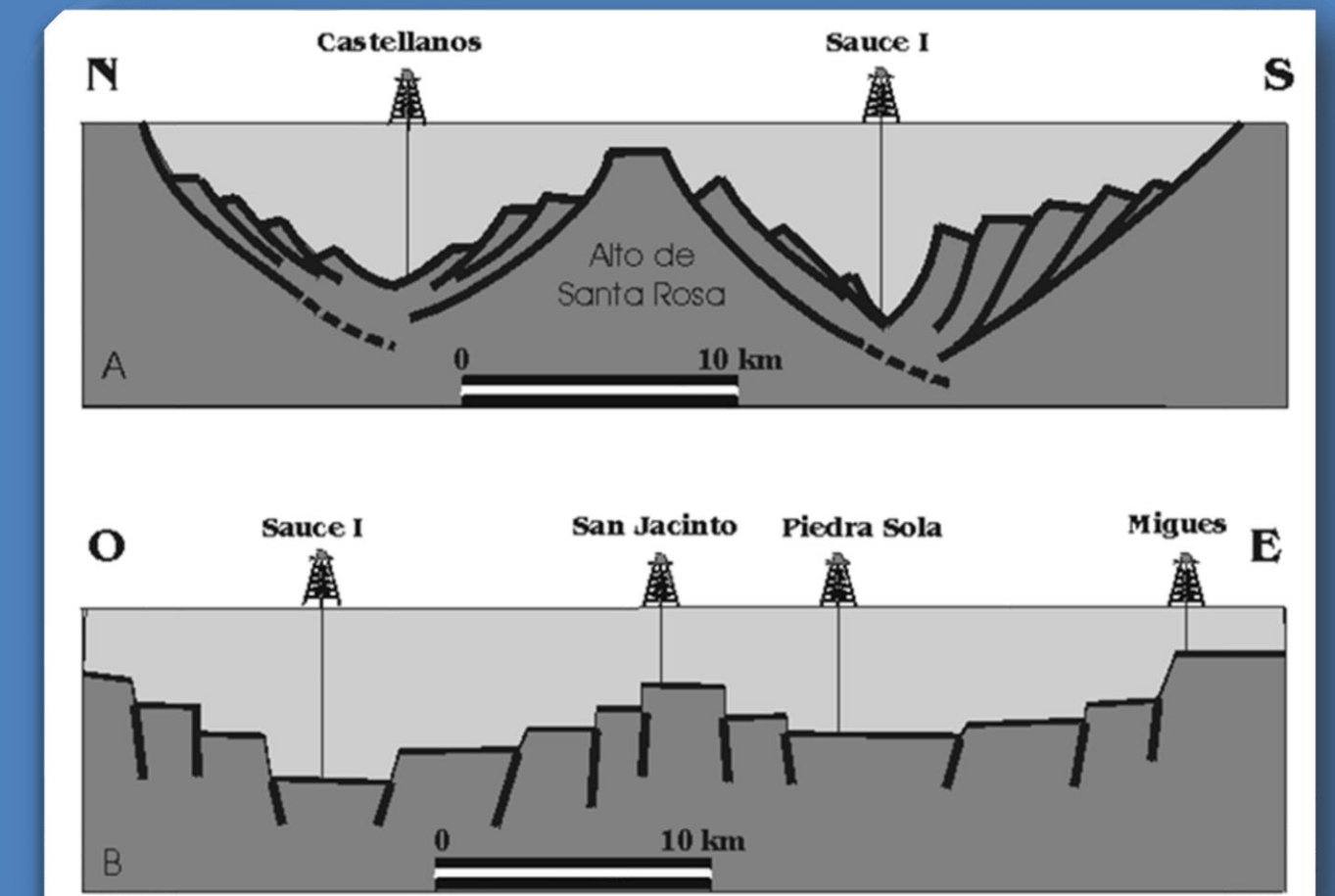
AREA OF STUDY



GEOLOGY AND STRATIGRAPHY

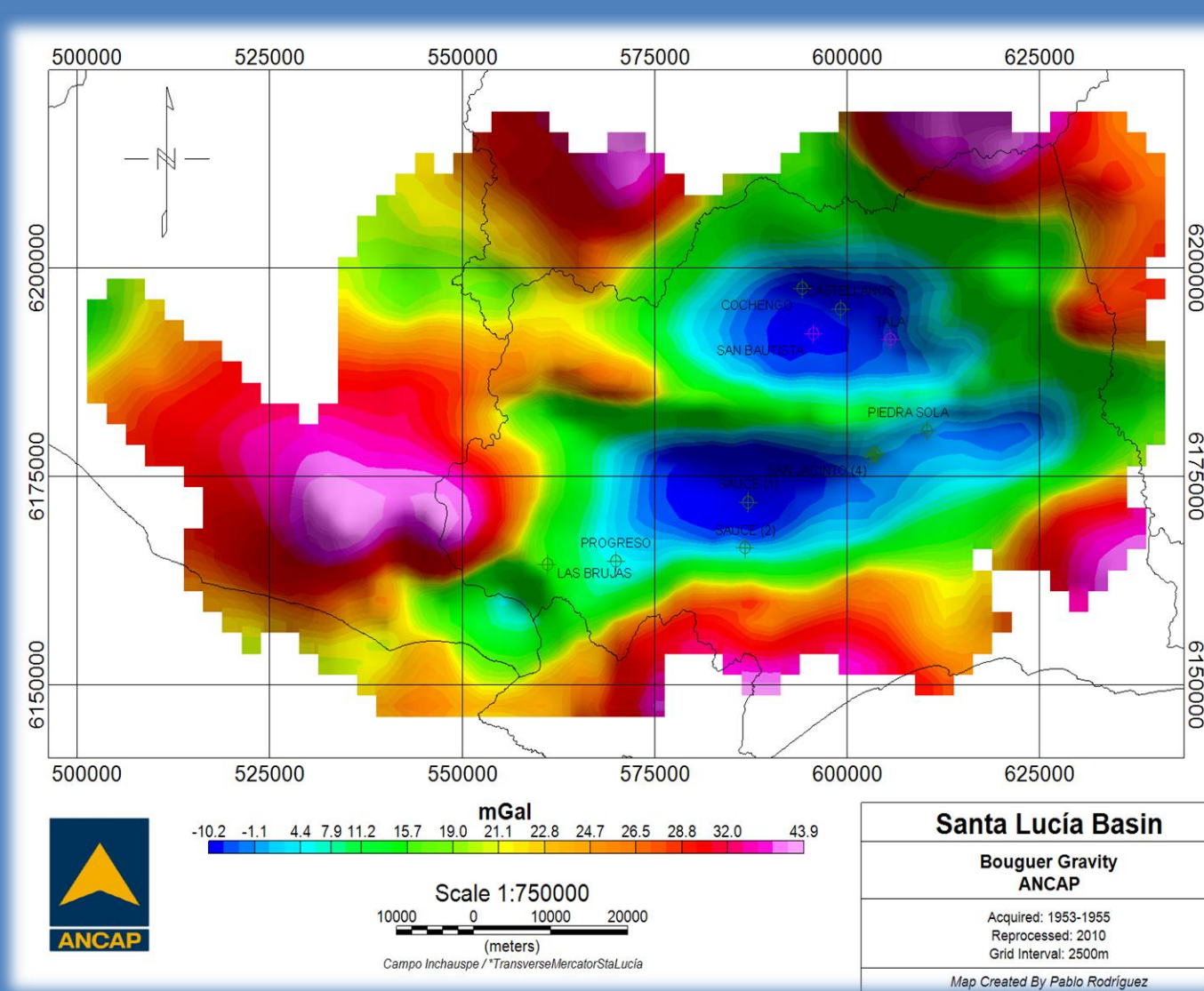


- Pull-apart basin
- 8,000 km²
- Late Jurassic to Quaternary infill
- Maximum drilled thickness: 2,450m
- Internal high divides to sub-basins



DATABASE AND METHOD

4,089 gravity stations



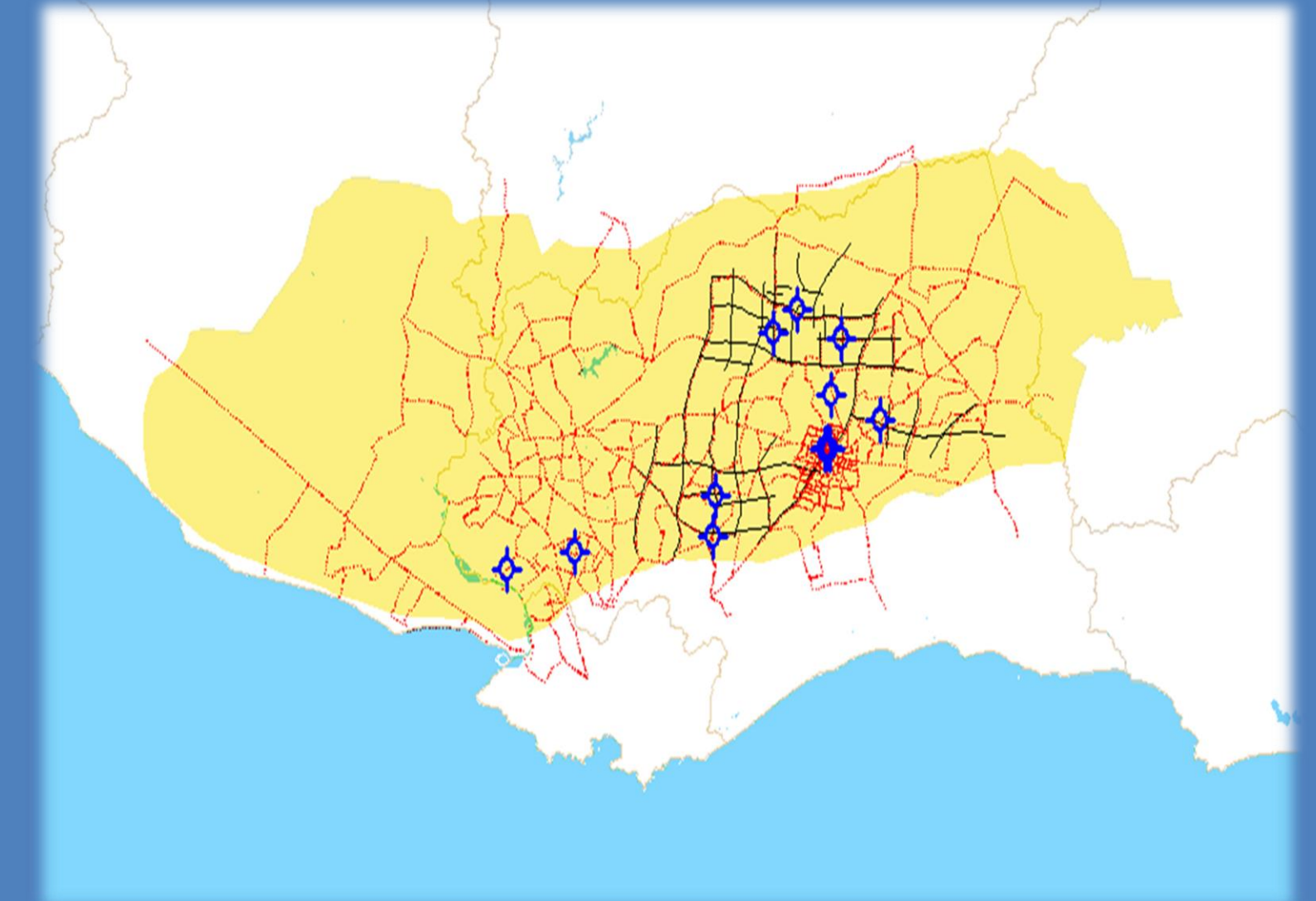
12 wells with logs (8 into the south sub-basin)

Well code	Well name	Total Depth	Campaign
NO_2_SJ_X2	San Jacinto 2	1,208 m / 3,963 ft	1955-1959
NO_3_SJ_X3	San Jacinto 3	1,243 m / 4,078 ft	
NO_4_SJ_X4	San Jacinto 4	1,230 m / 4,035 ft	
NO_5_S_X1	Sauce 1	2,460 m / 8,069 ft	
NO_6_P_X1	Progreso	838 m / 2,749 ft	
NO_7_S_X2	Sauce 2	1,690 m / 5,544 ft	
NO_8_B_X1	Las Brujas	723 m / 2,371 ft	
NO_9_C_X1	Castellanos	2,025 m / 6,642 ft	
NO_10_Co_X1	Cochengo	317 m / 1,040 ft	
NO_11_PS_X1	Piedra Sola	1,598 m / 5,241 ft	1978-1979
NO_12_SB_X1	San Bautista	1,954 m / 6,410 ft	
NO_13_T_X1	Tala	1,688 m / 5,538 ft	

Core samples



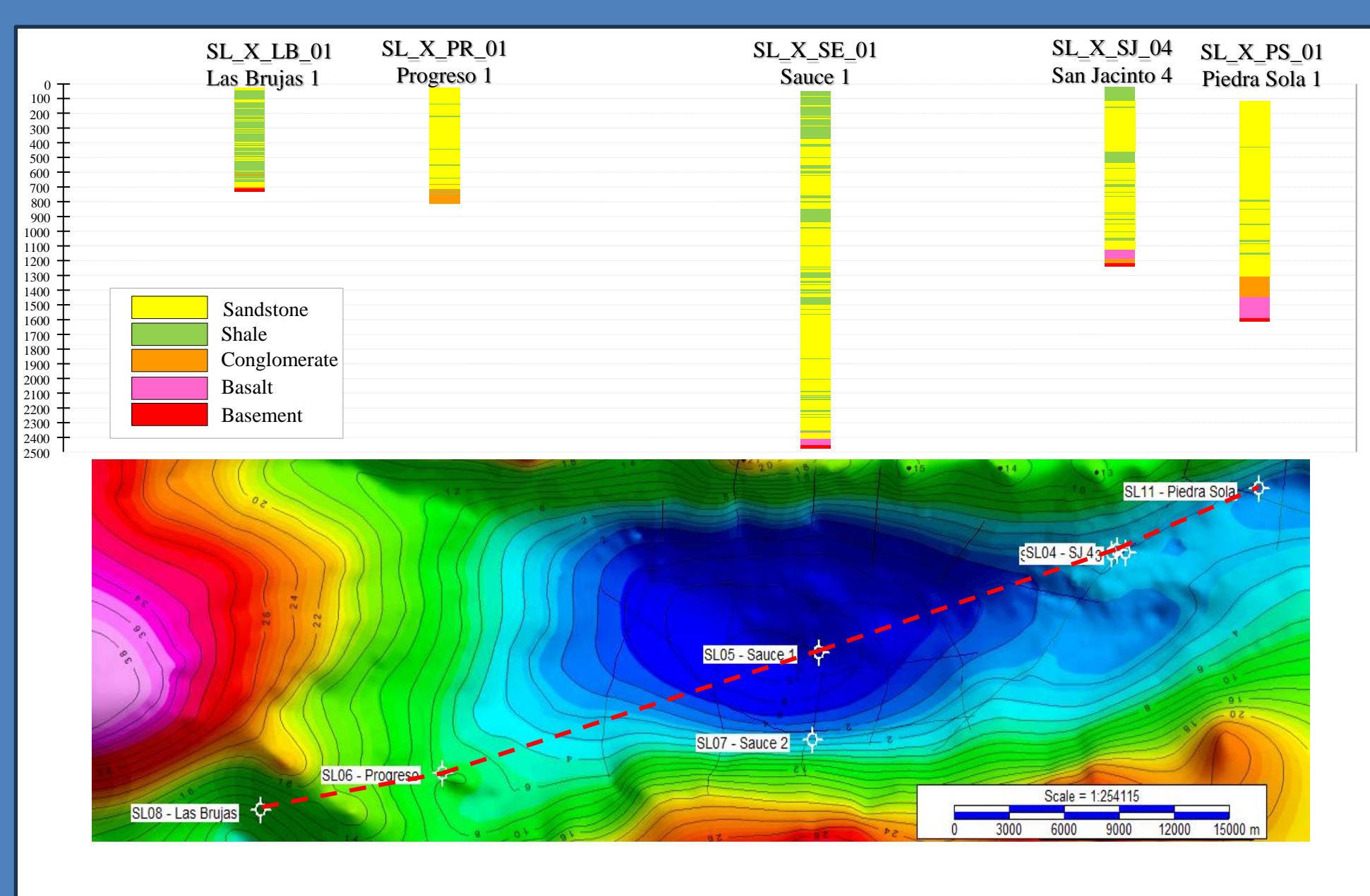
293 km of 2D seismic



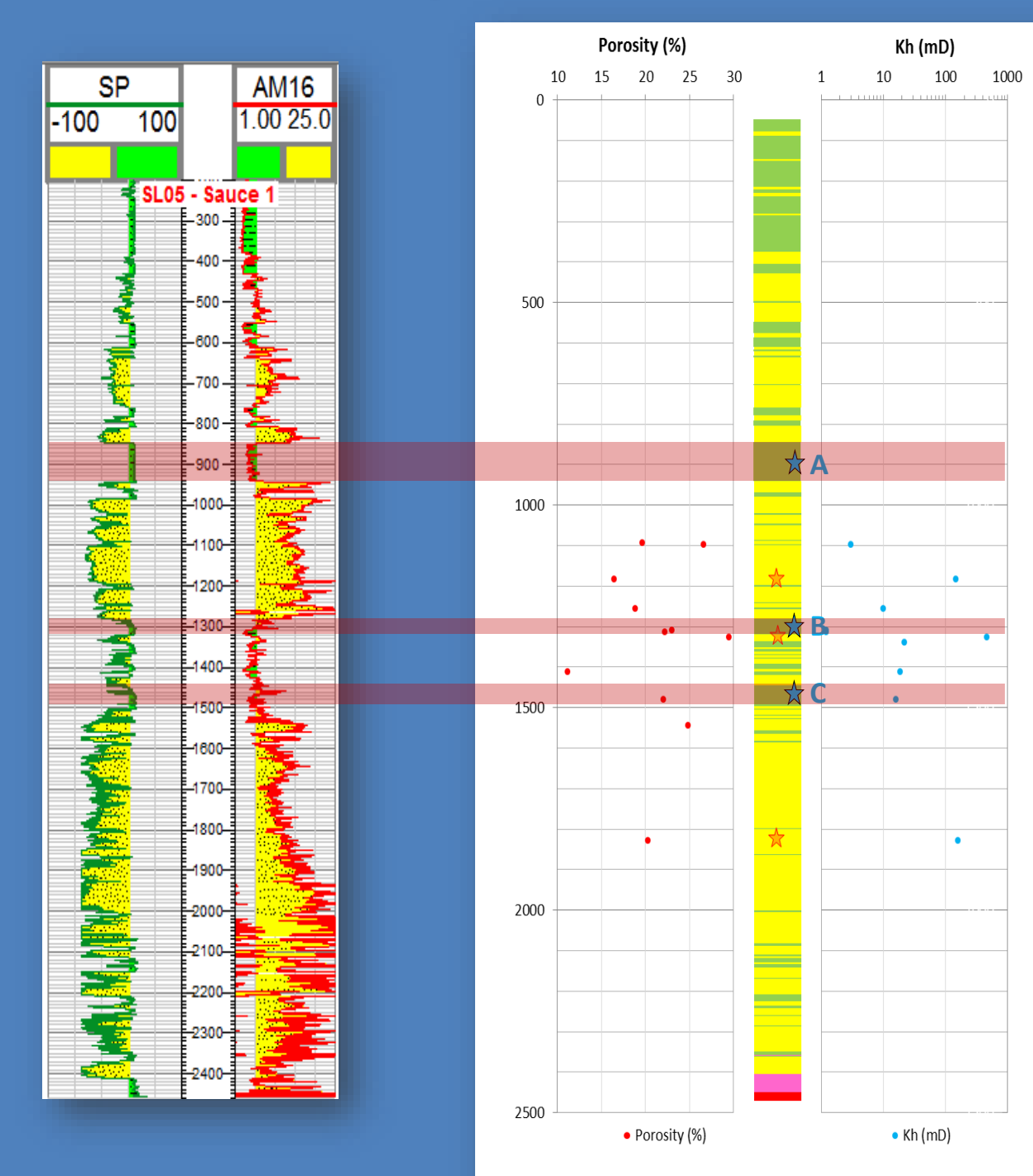
From the joint interpretation of gravity data, cores, well logs and 2D seismic, probability distributions for a volumetric calculation of CO₂ storage were obtained in a structure associated with a saline aquifer in the south sub-basin (Sauce structure). The characteristics and quality of the reservoirs and seals, as well as the integrity of the structure were analyzed.

RESULTS

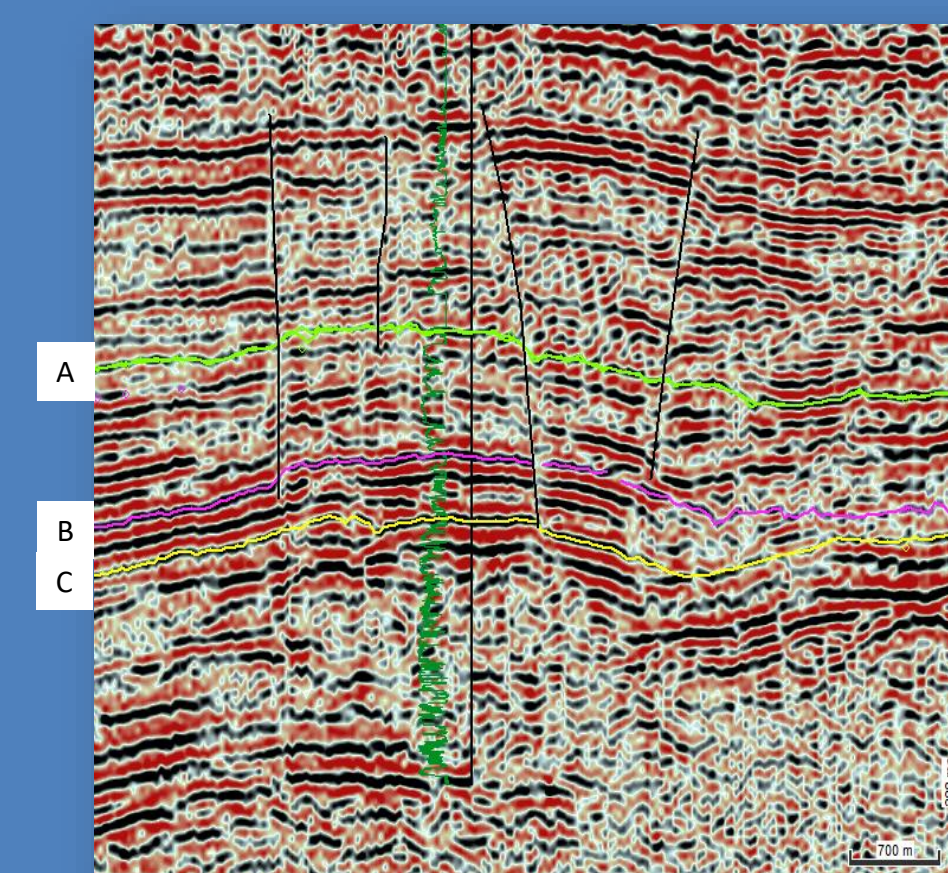
Wells correlation in south sub-basin



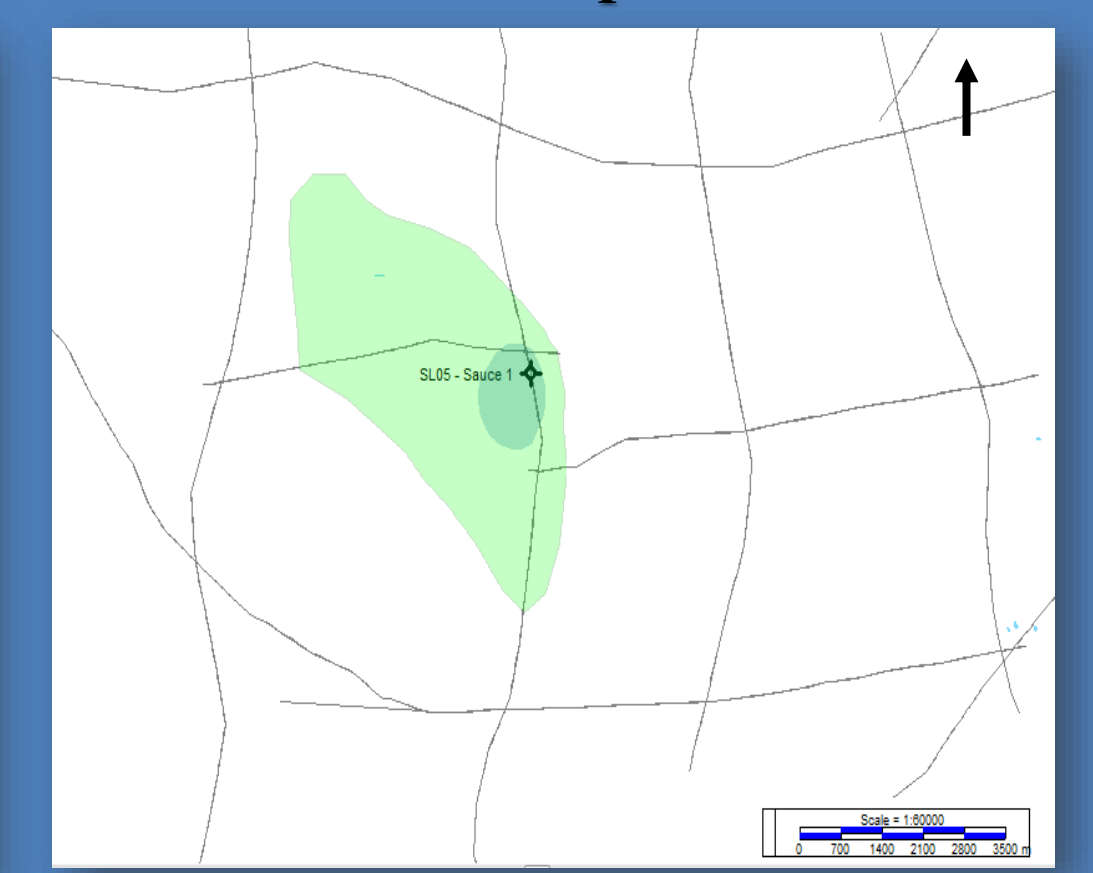
Sauce-1 well logs with reservoir levels



Sauce structure in seismic



Sauce structure in plan view



The volumetric calculation for the probabilistic sum of the useful volumes within the three levels yield values in the following ranges (P90-Mean-P10): **(4-12-23) x 10⁶ tons of CO₂**

Well data indicates good reservoir properties in at least 3 levels with tops at depths between approximately 900 and 1500 m. The reservoir levels consist of significantly thick sandstones with intercalations of shales as top seals, associated with a four-way closure anticline structure interpreted from 2D seismic data.

CONCLUSIONS

- To evaluate the CO₂ storage potential of the Santa Lucía Basin, a structure in the southern sub-basin was analyzed.
- This structure exhibits 3 to 5 sandstone levels with favorable reservoir conditions ranging from 900 to 1,500 m depth.
- Reservoir levels thicknesses exceed 100 m with average porosities of 22% and average permeabilities exceeding 200 mD.
- The thicknesses of the overlying shales suggest efficient seals.
- However, new 3D seismic data must be acquired to confirm the closure of this structure.