

### **ARGENTINIAN SEA** SEISMIC-WELL DATABASE EXCLUSIVE GEOLOGICAL/GEOPHYSICAL ASSESSMENT



### SEISMIC-WELL DATABASE OF THE ARGENTINIAN SEA

225.000 km of 2D seismic over an estimated of 250.000 km of 2D seismic acquired between 1965 and 2018

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The best offered datasets on the market cover roughly less than 175.000 km, there are approximately 50.000 km of data unaccounted for on them

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Only 25.000 km of the original 250.000 km were dismissed because they were deemed unreliable or later replaced with a better acquisition

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10700 km<sup>2</sup> of 3D seismic on SEG-Y, out of a grand total of 13600 km2

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Well data: 328 locations of which 199 have additional data (logs, well reports). This information comprises public data plus data from older and private databases. Other available datasets on the market only disclose about or less than 60 wells

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Plus 168 onshore locations close to the shoreline, 131 of them with additional data (logs, reports)

### SEISMIC-WELL DATABASE OF THE ARGENTINIAN SEA



- General view of the seismic well data

The raw original seismic information has many associated shortcomings, from wrong coordinates (or directly the lack of them) to substandard seismic quality (multiples, noises, remnant artifacts from the digital conversion of copies), even inaccurate line names, faulty SP numbering, arbitrary splits and decimations, only non-migrated versions and an unsatisfactory overall arrangement. **Each problem has been addressed after organizing partial databases and an up-to-date global one which Seiscenter is pleased to offer now.** 



San Jorge – San Julian - Austral Basins (DETAILS)



<sup>—</sup>Leases – First round

### HIGHLIGHTS

#### Extensively QC'd

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More than 50.000 km of 2D seismic over other databases on the market. That means almost 30pC of additional data ready to use

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An exclusive database of graphic files (tiff, jpg) of observer reports and original 2D processed stacks on hard copies which allowed unparalleled QC, data recovery, coordinates checking and quality migrations

The critical task of such extensive work has been the data coming from the middle sixties to the middle eighties -about 45pc of the available 2D lines- and the SEG-Ys originated in vectorized films/hard copies, approximately 35pc of the 2D lines.

The older seismic has many drawbacks on its coordinates as they were digitized from base maps with different degrees of reliability. Furthermore, much of the current public information available in SEG-Y casts many doubts: reference geodetic systems are not always clarified, coordinates with excessive rounding, projection sectors not well fitted to the actual data, faulty SP numbering -mainly on the vectorized SEG-Ys- or having no coordinates at all.

Conventional databases have simply dismissed much of the information after weighing it as inconsistent or incomplete. Seiscenter has crosschecked multiple sources, original observer reports and hard copies, has even interviewed surveyors and geophysicists then in charge of the acquisition/navigation and simulated each solution to check its reliability, hence minimizing the problematic information which otherwise should have been discarded. Notably, whole sectors of the Argentinian offshore are covered only by this kind of old data.

# A UNIQUE ASSET

A remarkable tool Seiscenter has is a database covering most of the lines on graphic format images (tiff, jpg) of the original stacked 2D films/hard copies, plus more than 1400 observer reports.

In this way bulk parameters have been checked: SP numbering, line length and original line name which have to match base maps and image files. Throughout the years many lines have been split or decimated and given arbitrary names, all these issues have been addressed. Moreover, many of these films/hard copies preserve local stacking velocities which have provided the velocity for migrations, non-migrated stacks accounted for about 35pc of the data.



– Example of tiff images, posted velocity locations and detailed sidelabel. An exclusive Seiscenter's database covering most of the 2D seismic lines which allowed an extensive QC, data recovery and quality migrations

### **BASIC WORKFLOW**

Extensive QC of coordinates and coordinate systems

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Post-stack 2D migration of stack versions, using the original velocities preserved on graphic images (tiff, jpg) of films and/or hard copies

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Post-stack multiple attenuation

#### $\downarrow$

Removing of remnants of timelines on vectorized films/hard copies

#### Ť

Interpolation of decimated versions to match the original seismic acquisition

#### Ŷ

Merge of arbitrarily split 2D sections to match the original seismic acquisition, SP numbering and line names

## **BASIC WORKFLOW**



Before and after - Multiple Attenuation, Austral Basin, 1974

## BASIC WORKFLOW

Before and after - Migration, Colorado Basin, 1973



– After

# QC

Check of misties on workstations to confirm coordinates

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Crosscheck of bulk parameters on hard/film copies versus SEG-Y versions (line name, line length, SP numbering)

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Crosscheck and validation of coordinates from different base maps

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Recalculation of coordinates when deemed inconsistent, inaccurate or the geodetic system was not clarified enough

#### Ŷ

Interviews with geophysicists and surveyors who worked on the original surveys

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Every SEG-Y header (EBCDIC, trace headers) was checked and standardized

### **AVAILABLE MATERIAL**

SEG-Y files with a set of three checked coordinates on their trace headers

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GIS database or Excel/Ascii database

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Wells: logs and reports

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Partial requests based on leases or basins are available

# **SPECIAL – AVAILABLE NOW**

An exclusive and up-to-date description of the geological-geophysical context, petroleum systems, reservoirs, source rocks, traps, seals, main fault trends and known plays.

A special insight regarding the Argentinian Offshore, more of one hundred pages of detailed information, basin by basin.

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