### **New Stratus Energy Inc**

Colombia - VMM 18 Block

Corporate Technical Presentation

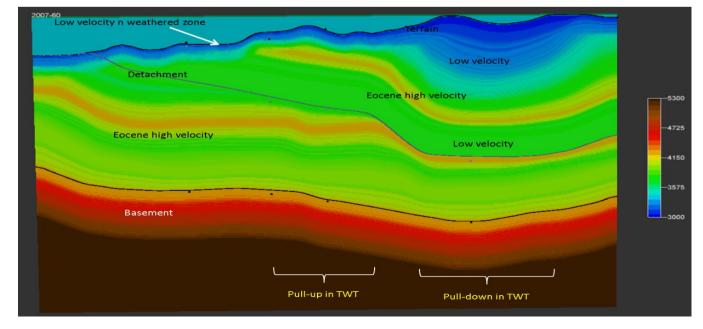
# 2D & 3D Reprocessing & Reinterpretation - Update

July 2022



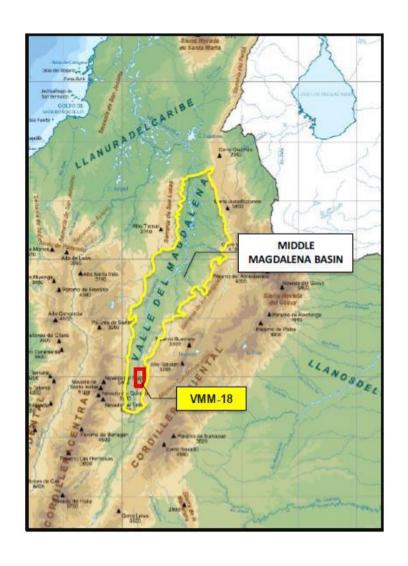


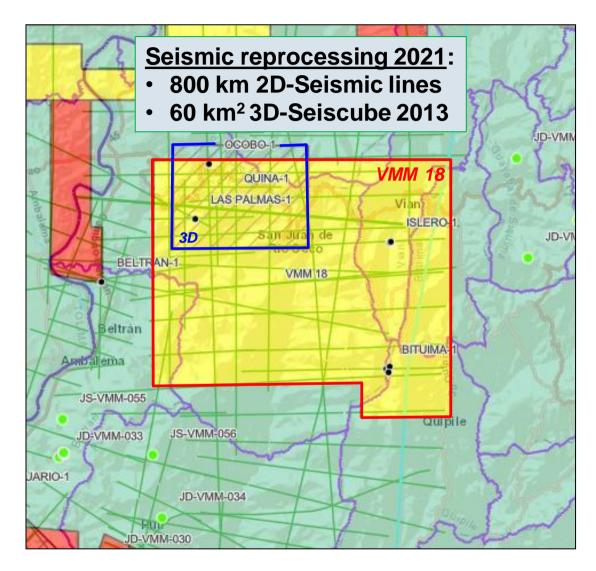






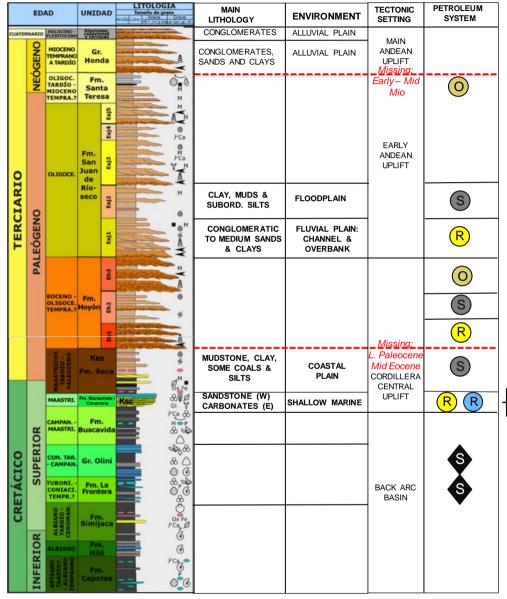
### 2D & 3D Seismic Reprocessing







#### Stratigraphy and Petroleum Systems of the Southern MMB Strictly Private & Confidential



Modified from: Manrique, J., Amézquita, C. et al. (2014)

Almacigo Esi2 clay prone local member

Oligocene fluvial Doima sands equivalent to San Juan's Armadillos basal unit are effective reservoir in Toqui - Toqui

Hoyon's local Agua Clara mudstone member Eocene fluvial Chicoral sands equivalent to basal Hoyon (Cambao) are effective reservoir in Toqui -Toqui

Seca fm. regional shale unit

Monserrate sand reservoir in Puli and Quintero fields Cimarrona carbonate reservoir in Guaduas

#### PETROLEUM SYSTEM

OVERBURDEN

S SEAL

RESERVOIR (Limestone)

RESERVOIR (Sandstone)

S SOURCE



#### **Seismic Reprocessing 2021-2022**

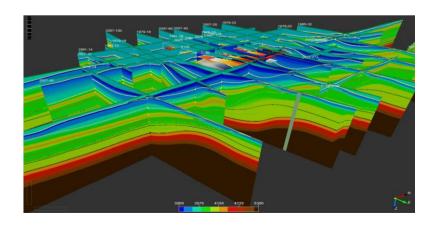
#### INFO GEOSCIENCES TECHNOLOGY AND SERVICES, HOUSTON TX

#### Objectives:

- ✓ Time to depth conversion and derived properties
- ✓ Estimation of elastic properties through inversion of seismic amplitudes and characterization of reservoir properties
- ✓ Seismic reprocessing of the 3D volume & 2D sections.
- ✓ Seismic inversion and reservoir estimators in 3D cube & 2D sections

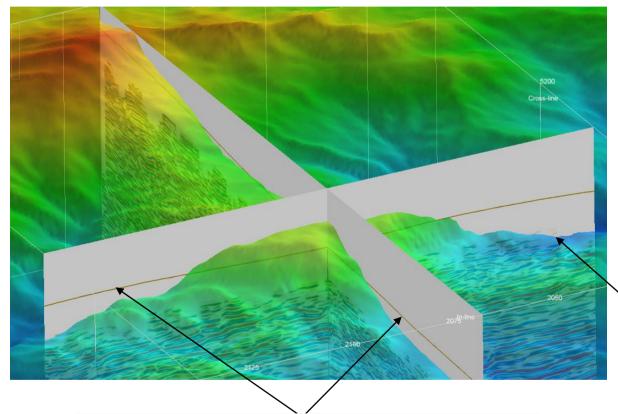
#### <u>Technical Team</u>:

- ✓ Info Geosciences technicians.: *Miguel Bosch / Raul Colmenares / Adriana Moreno*
- ✓ NSE: Arturo Lara / Juan F. Arminio





#### **Reprocessing: 3D Cube Vertical Adjustment**



Surface elevation is very smoothed compared to the real one

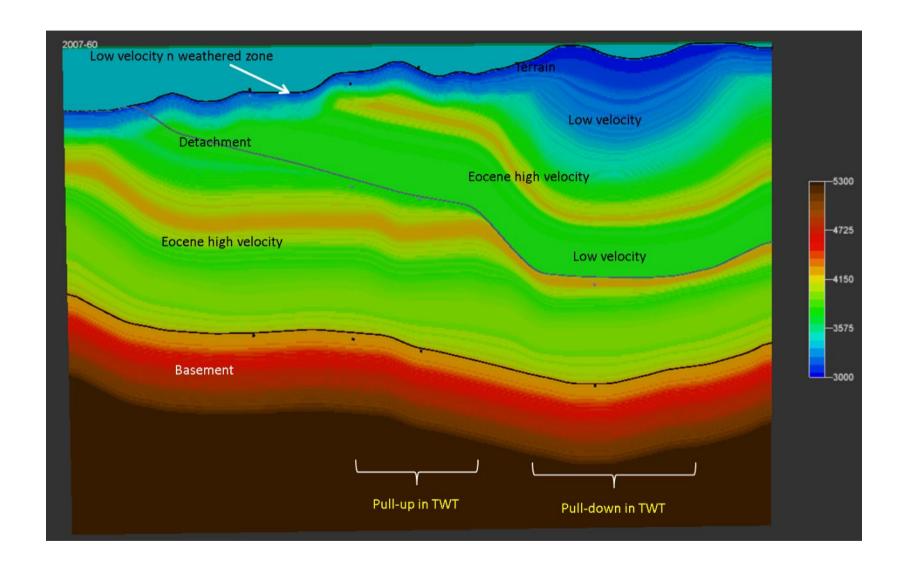
Terrain elevations in the 3D cube show two problems:

- The surface elevation profile was exaggeratedly smoothed for seismic processing
- There is an average downward shift of the actual elevation map

On average the true elevations are displaced down from respect to the used in the processing

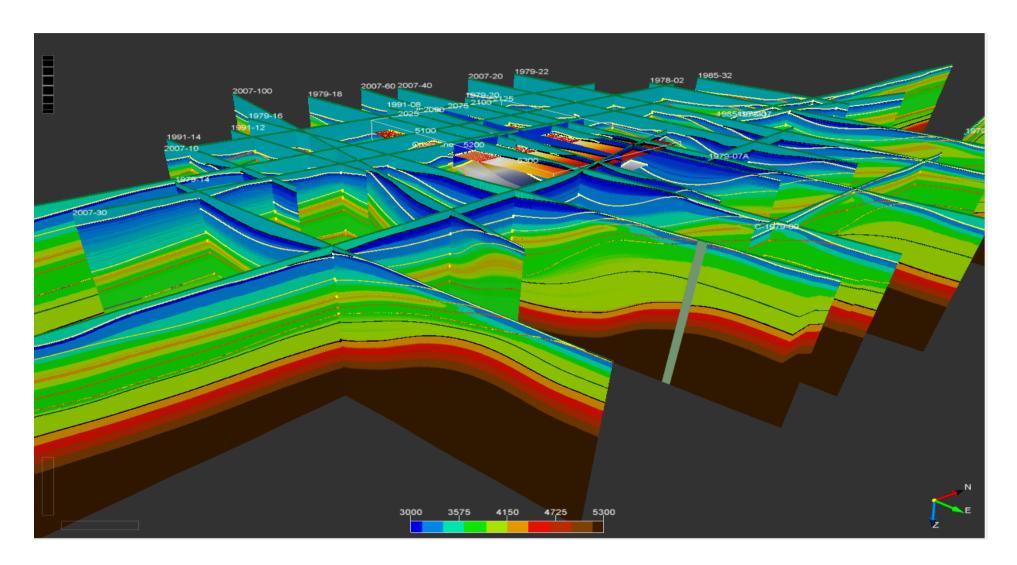


# **Seismic Velocity Model 2D-3D**





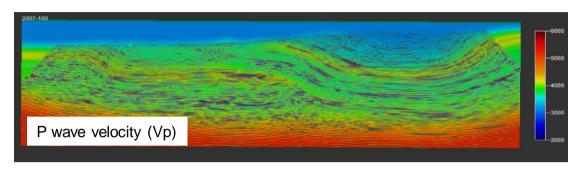
# **Seismic Velocity Model Extrapolation**

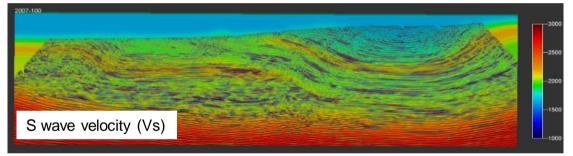


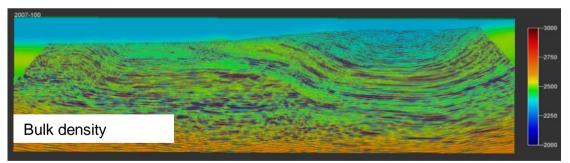
2D &3D seismic integrated velocity model



#### **Seismic Inversion - Estimated Properties**







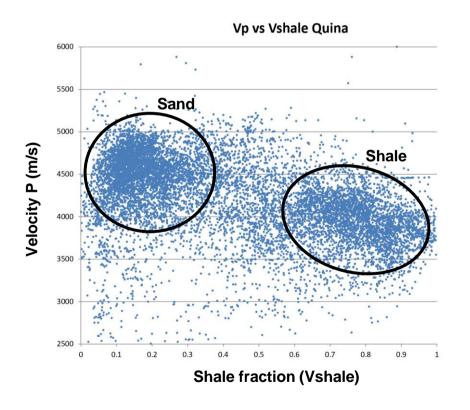
The seismic inversion technique allows estimating the elastic properties of the medium that explain the observed seismic reflections. The reflectivity is calculated by the well-known Zoeppritz formula; an advanced estimation algorithm is used taking into account the previous information on the elastic properties and the source seismic wavelet.

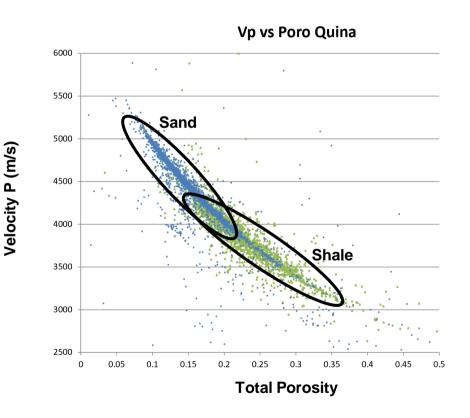


#### **Reservoir Properties Characterization**

# **Lithology & Porosity plots**

The sands in this area are characterized by a higher seismic velocity than shale, as well as lower porosity, higher acoustic impedance and density than clays. This allows to discriminate sands and clays from the properties estimated with the investment





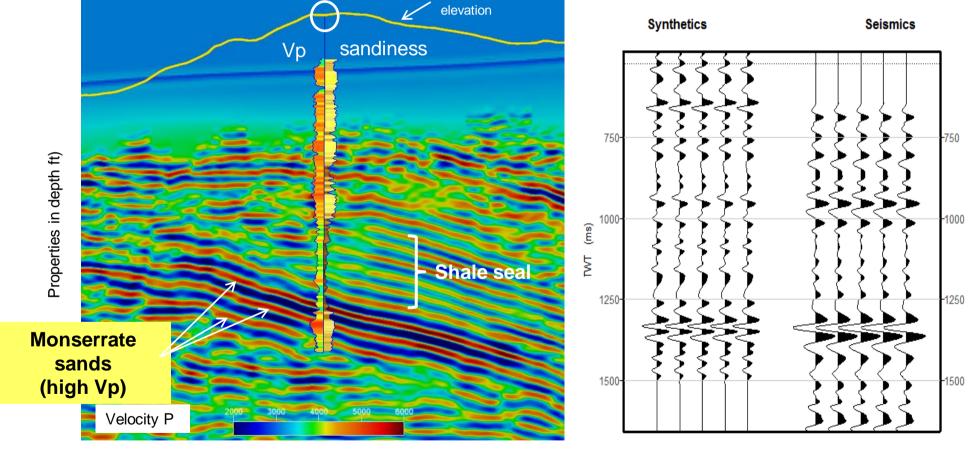


#### **Reservoir Properties Characterization - Quina Well**

#### **Quina Well - Inline 2067**

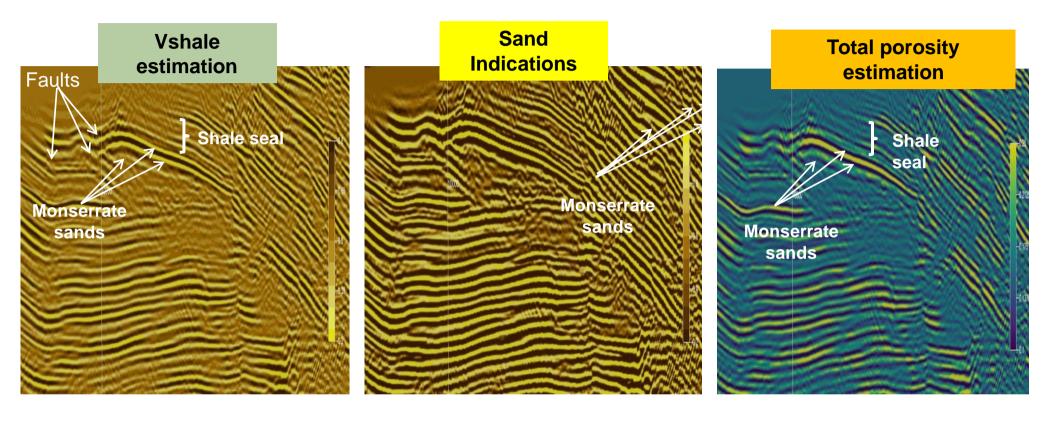
P velocity in log and seismic







#### Reservoir Properties Characterization - Hercules Prospect Strictly Private & Confidential

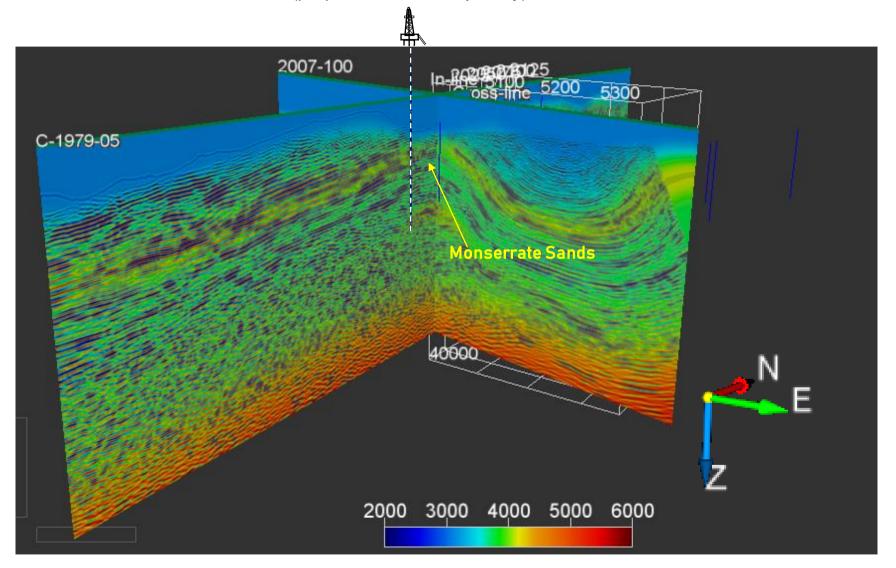


Hércules Norte (2D Line 1979-18)



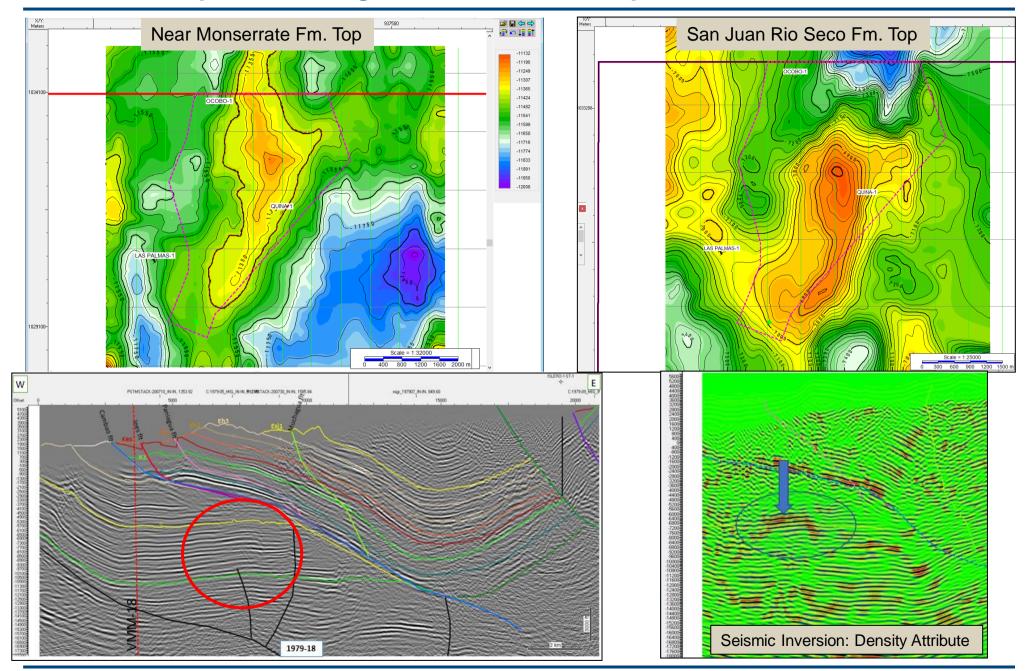
#### **Hercules 1**

(proposed vertical trajectory)





### **Seismic Interpretation: Cigarra Sub-thrust Prospect**

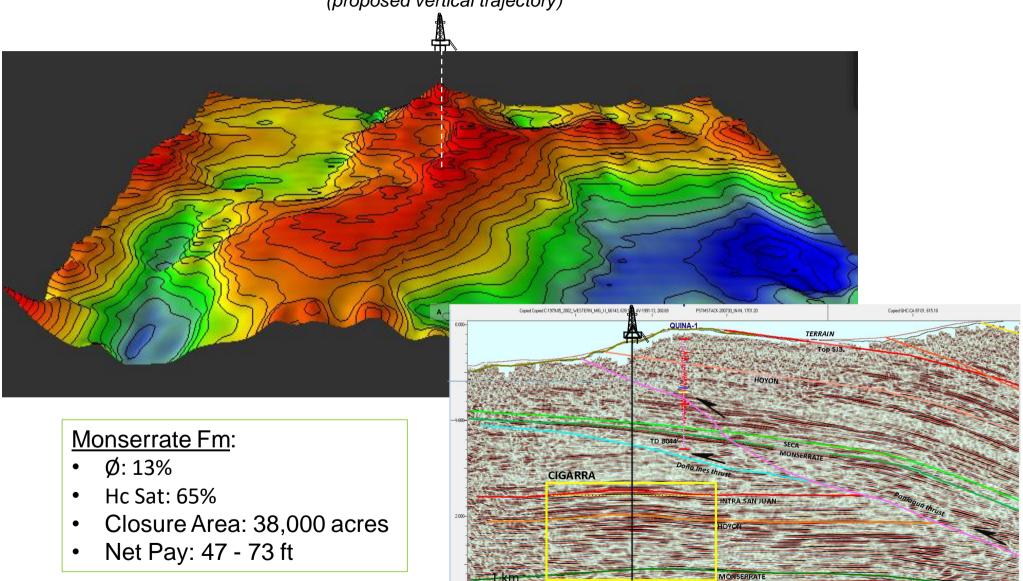




### **Cigarra Sub-thrust @ Monserrate Formation**



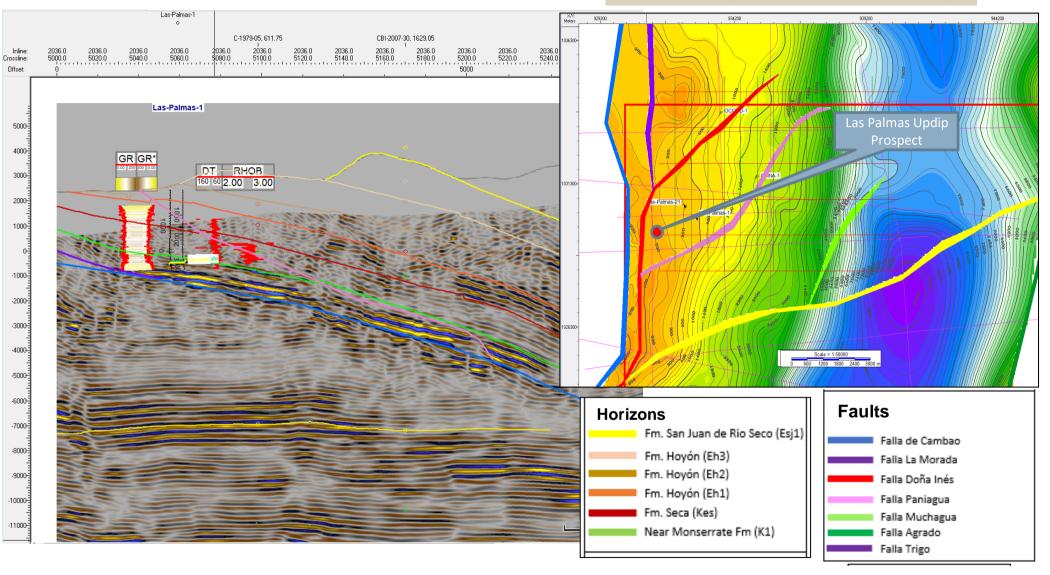






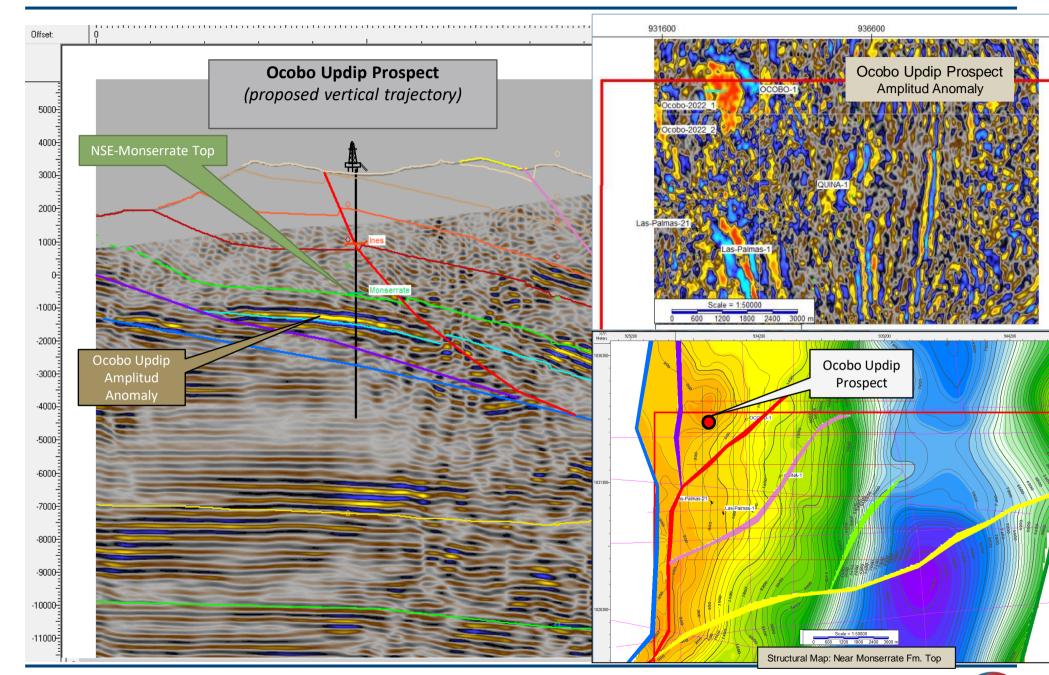
#### **Las Palmas Updip Prospect - Seismic Interpretation**

#### Structural Map: Near Monserrate Fm. Top





# **Ocobo Updip Prospect - Seismic Interpretation**



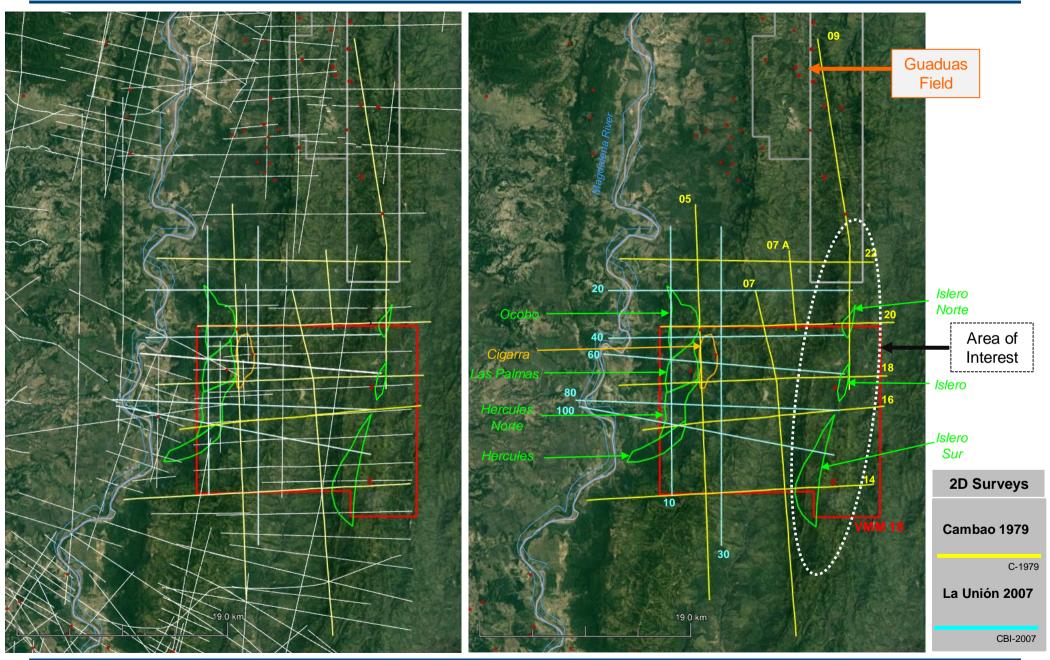


# Colombia Block VMM 18

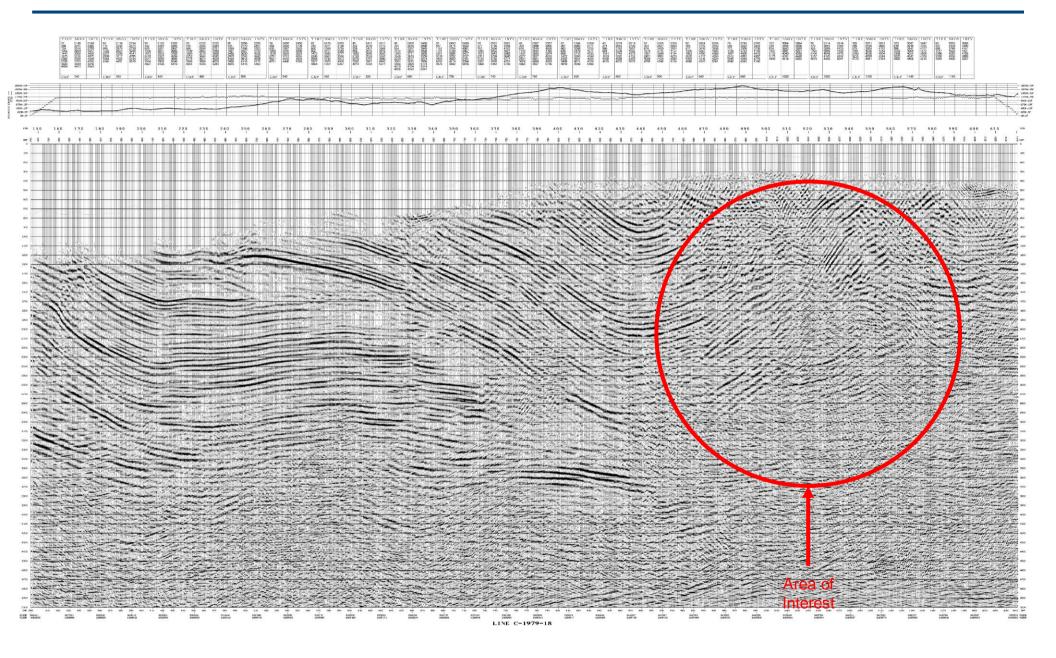
# 2D Depth Reprocessing Test Eastern Oil&Gas Trend Guaduas Syncline Play

Currently a 2D Seismic Line Depth Reprocessing
Test is being carried out to decide on the
reprocessing of the Surveys Cambao 1979 & La
Unión 2007, taking into account the improvement
of the image in the sub-thrust zone in the eastern
part of the Guaduas Syncline

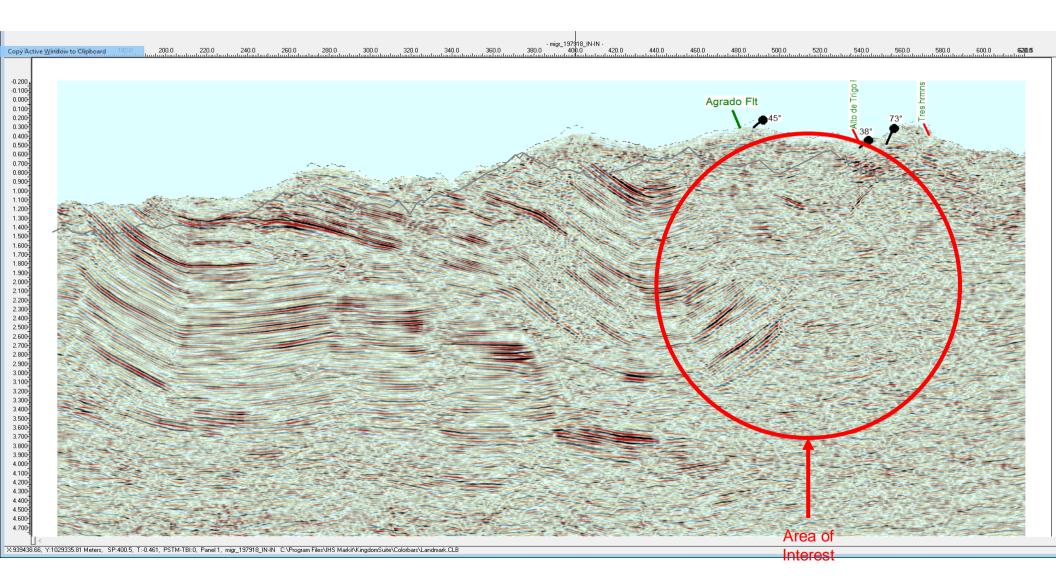














#### Islero 1 ST6 HARKEN DE COLOMBIA CAMBILLOS ASSOCIATION CONTRACT 3-4716 Cross Section C79-18 Jay Namson Davis & Namson Consulting Geologists Cambao Thrust Honda Fm -5,000 Gualanday Fm 10,000 Hoyon Fm Guaduas Fm Jurassic and older 10 km Based on the existing well&seismic data, Surface Geology and Regional Structural Model, we are currently working on the interpretation of the Line 18 to generate the local structural model to guide the PSDM in order to Area of Interest improve the image in the sub-thrust zone in the eastern part of the Guaduas



Syncline.

# **END**

