

# Case Study 1: Part B

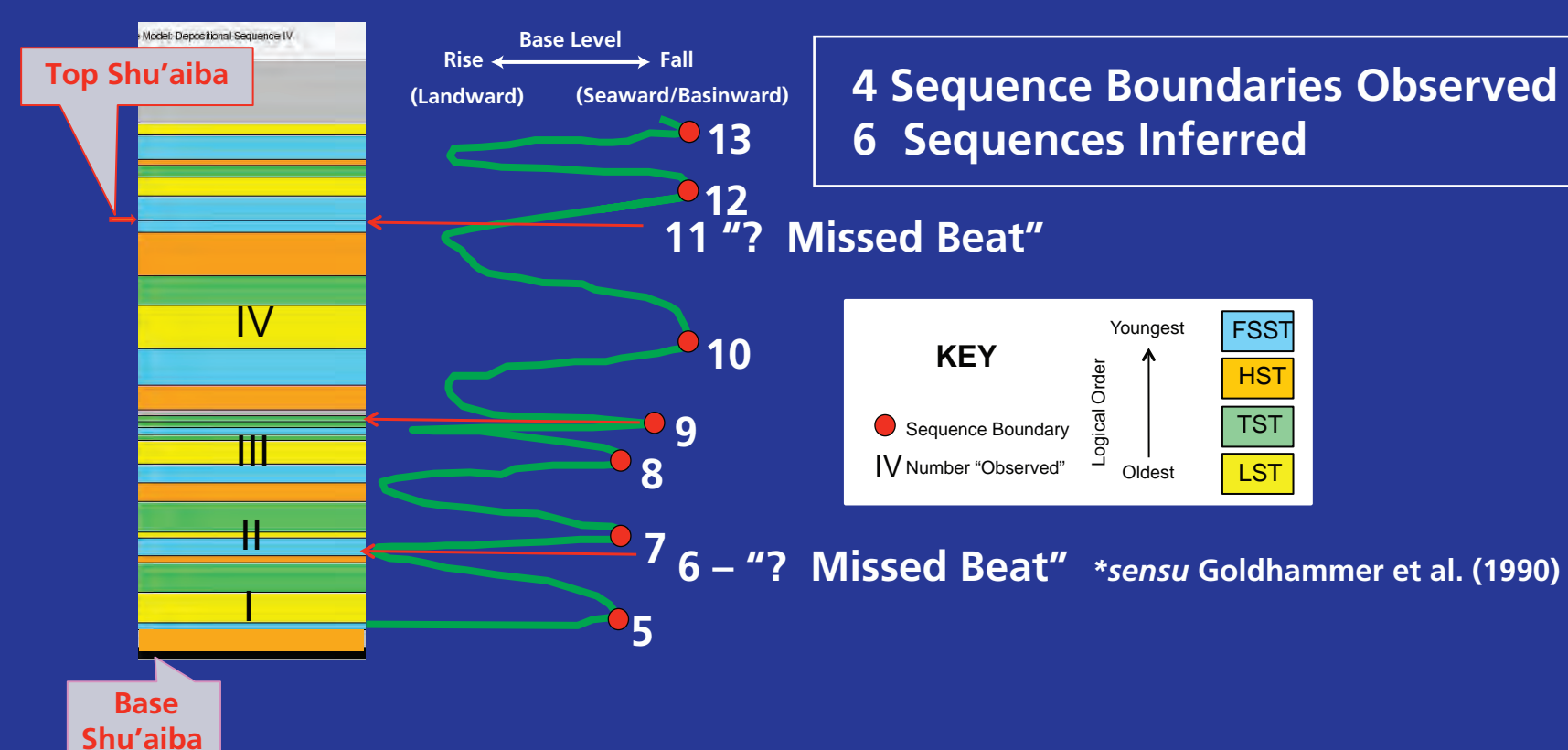
## Southern Rub' Al-Khali, Lower Cretaceous

### Shu'aiba Formation

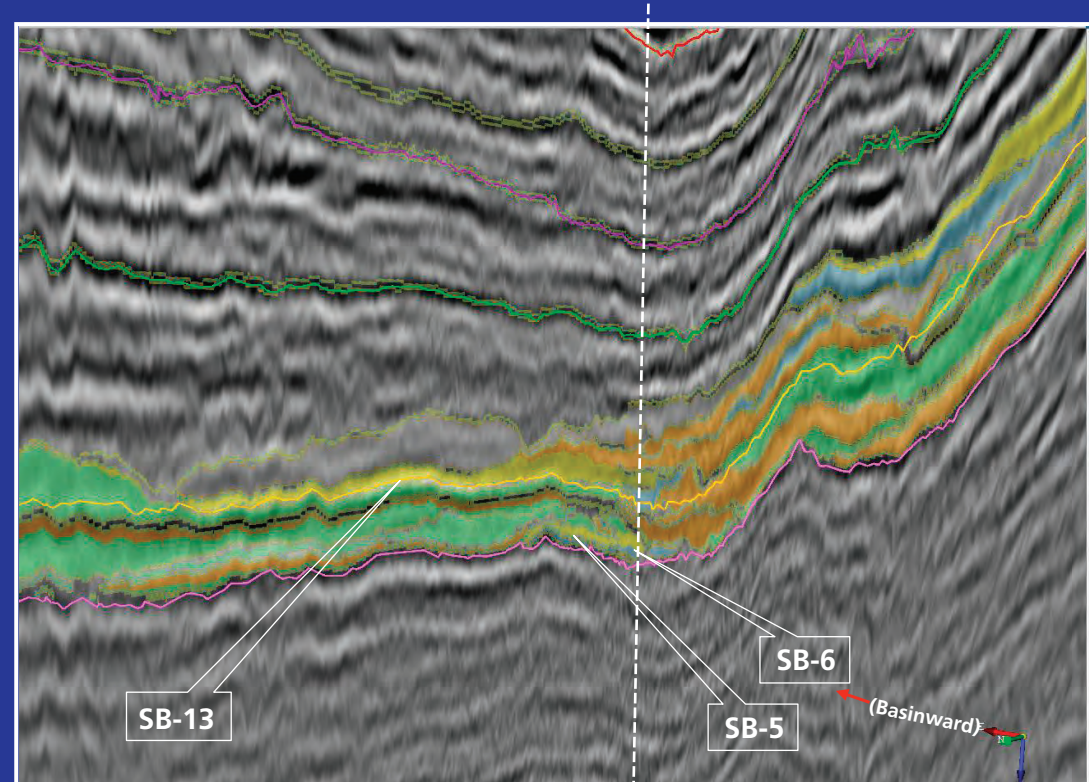
#### Cross Posting Shows

- Some parasequences are absent from "Strike4" – labeled here as "? Missed Beat"
- *Sensu* Goldhammer et al. (1990) – Missed beats occur when the platform top remains emergent at sea-level maximum

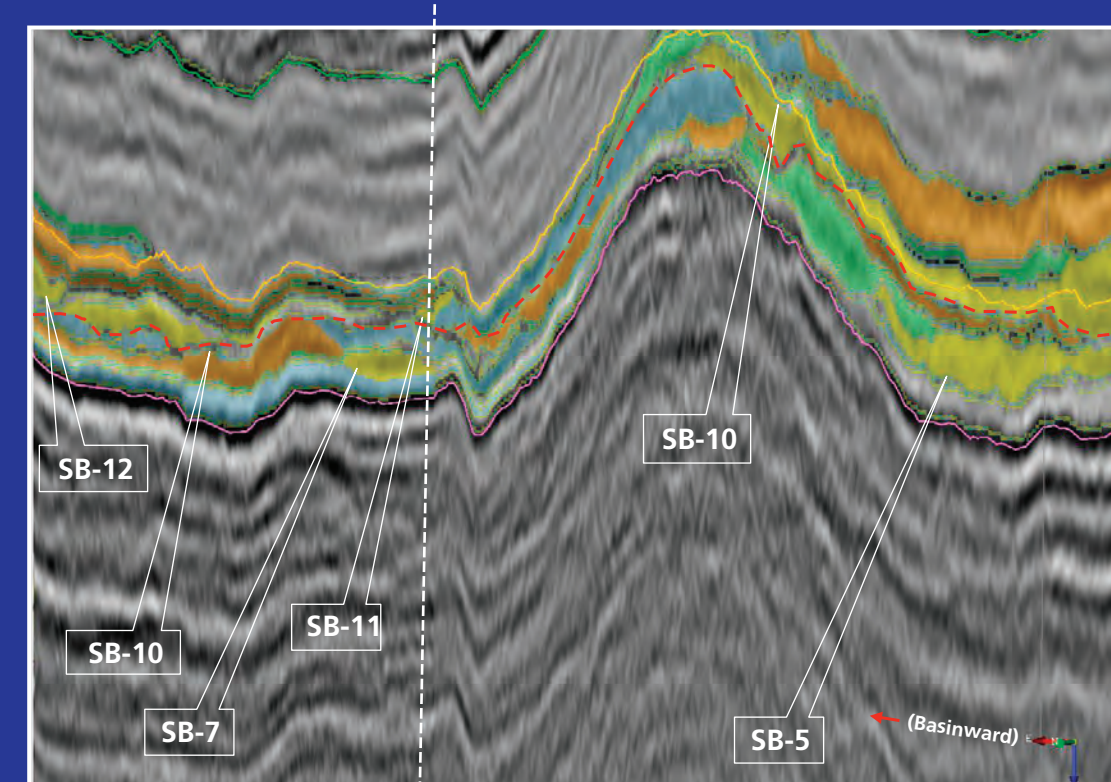
#### Summary Strike 4



Example 1 Dip 4 vs. Strike 3



Example 2 Dip 5A vs. Strike 4



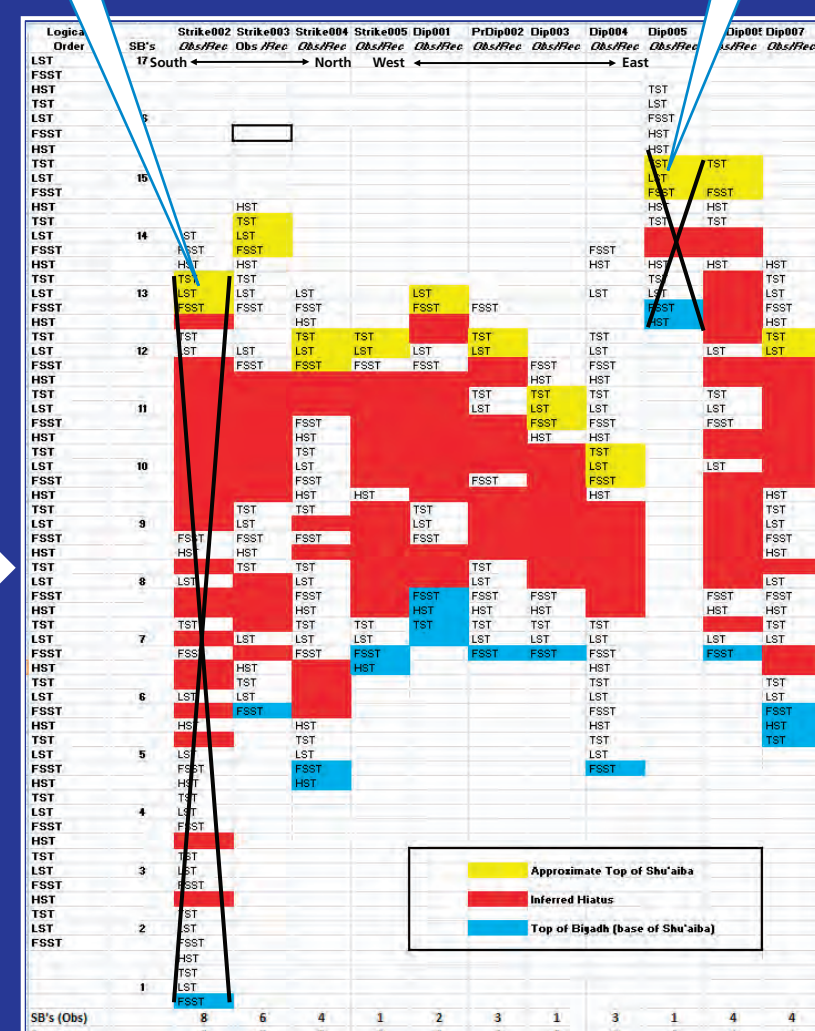
- ★ Local static busts or local zones of poor data quality inherent in the land seismic data presented challenges to chronostratigraphic analysis.
- ★ A spread sheet was used to keep track of systems tracts observed among different 2D lines extracted from the 3D volume.

Not Considered

Not Considered  
(outliers with too many or too few observations)

#### Method for Correlating Systems Tracts

- 1- Eliminate poor correlations
- 2- List observed systems tracts and systems tracts inferred from logical order (blank)
- 3- Use temporary markers (red) to match particular systems tracts on cross posted lines
- 4- Review correlations to close-up obvious gaps (e.g., areas where systems tracts were inferred but not observed)



#### Observations & Facts

Not all sequences are observed or inferred to be present on all lines.

The number of sequence boundaries (SBs) observed on each line ranges from 8 to 1 and the number of sequences inferred to be present on each line ranges from 9 to 2.

The Shu'aiba Formation (Aptian) ranges from about 125 to 112 Ma and spans about 13 Ma.

The top Shu'aiba typically coincides with a FSST or LST.

The top Biyadh (base Shu'aiba) is a consistent seismic marker and consistently coincides with a HST or FSST.

The top Shu'aiba is a less consistent seismic marker than the top Biyadh.

#### Summary & Conclusions

- 1- Relative position with respect to the shelf, basin margin, and basin determined where the sequences were deposited.
- 2- The number of observed SBs and sequences falls within the range reported by Yose et al. (2006) from an area about one-quarter the size of our study area.
- 3- The average duration of the systems tracts (2 to 9 inferred) is in the range of about 6.5 to 1.5 Ma, suggesting that most are 3rd order sequences with some possibly being 4th order sequences.
- 4- A top Shu'aiba surface terminating with a FSST or LST is consistent with subaerial exposure reported by most workers in the literature.
- 5- A top Biyadh (base Shu'aiba) seismic marker is consistent with a HST or FSST and agrees with the findings of Cantrell et al. (2004) who considered the base Shu'aiba to have deeper water affinities.