Jurassic-Neogene Arabian Platform Cycle Chart ارامكو السمودية Chrons Systems/Periods Series/Epochs Generalized Major Generalized Global Mean **Depositional Arabian Platform Regional Sea-Level Changes** Paleoceano-**Standard** Saudi Arabian Reservoir Source Profile (Chrono-**Sea-Level Changes** graphic **Major Tectonic** lagnetic (Stages / Ages Stratigraphy Intervals Intervals stratigraphic and Climatic **Events** Extent) Onlap Curve Relative Sea-Level **Events** Systems **Onlap Curve Sea-Level Curve** Major MFSs (Age) **Tracts** Changes Formation Member East **Basinward** West **★** Landward **Basinward** Pleistocene-Holocene 300 200 +100 0 -100 C1 300 200 +100 0.0 Gelasian Isthmus of Panama Arctic glaciation <u>Piacenzian</u> C2 Zanclean Dibdibba - 05 05 Messinian Salinity C3 Closure of Gibralter Messinian Crisis Isthmus, isolation of Mediterranean C4 Red Sea continues to open Tortonian 10 Major enlargement of Antarctic ice sheet MIOCENE Z Ш Serravalian Hofuf Final submergence of Ŋ Iceland-Faroe Ridge C5 Onset of North Atlantic deep water 0 Langhian 15 15 Dam Collision on eastern Arabian Ng30 (15.9) Ш margin (Zagros-Oman Foldbelt forms) Z HST Burdigalian Hadroukh Ng10 20 Onset of monsoons (20)LST/TST C6 and upwelling in Aquitanian Pg50 South Hemisphere C7 (24) - 25 25 OLIGOCENE C8 Chattian Drake Passage breached C9 Pg40 C10 Further inversion of (29) - 30 30 Euphrates Graben, C11 Palmyrids, Sinjar, following Rupelian onset of Zagros compression Pg30 C12 Closure of Neo-Tethys, initial rifting in Red Sea (33)C13-South Hemisphere - 35 35 Collision begins on northern Priabonian C16 Arabian margin (Meso-C17 potamian Foredeep of Alat Hasbah Onset of Antarctic Zagros Foldbelt forms) bottom water regime Bartonian Collision continues today! widespread deep C18 - HST. sea hiatuses Khobar Dammam Ш OCENE C19 Dammam TST Z Ш Alveolina HST C20 Ŋ Lutetian Saila TST 0 Spreading direction change in north Pacific C21 HST Midra Pg20 РА (48.6)TST C22 50 Onset of collision of South Hemisphere glaciation Rus India with Asia C23 Ypresian Spreading in Norwegian C24 - 55 55 Greenland sea begins HST Umm Er TST Thanetian Radhuma (59)60 Selandian C26 ıй. C27 Danian Masirah Ophiolite obduction on East Arabian C28 C29 65 margin and obduction on North margin drives C30 HST K180 Syrian Arc inversion Maastrichtian (68)C31 Separation of Seychelles 70 -HST from India C32 TST HST India begins its rapid 75 TST HST northward movement Campanian K170 Aruma Onset of rifting in C33 (78)Euphrates and Sinjar - 80 80 Basins of Syria HST TST Santonian Spreading begins between Australia (85)and Antarctica in HST Major anoxic Lawhah K150 Coniacian Tasman Sea event South (88)TST and central Onset of ophiolite Middle Turonian Atlantic obduction on Northeast 90 - 90 Unconformity Arabia and inversion Turonian warping of plate with K140 Mishrif Mishrif erosion and onlap) (93)Major anoxic Breakup of Australia-HST event on ocean 95 Antarctica starts TST floor (95)Rumaila Cenomanian New spreading ridge Rumaila HST forms off the eastern margin of Arabian Ahmadi (98)LST / TST S Platform (later obducted Major anoxic 100 100 (Qatar) as ophiolite in \supset event on ocean HST Turonian) floor Mauddud 0 Wasia (101)LST / TST C34 \circ HST Safaniya 105 105 Major anoxic \triangleleft Albian event in Europe LST / TST Ш \mathcal{C} Khafji LST / TST Khafji \circ 110 110 (U.A.E) HST (111) Late Aptian Unconformity LST / TST 115 115 HST (U.A.E) (117)**Aptian** TST Shu'aiba 120 120 Opening of Mediterranean begins (sub-basins form HST on Arabian Platform) (122.5)Motion ceases between LST / TST Madgascar and Africa 125 125 Naturaliste Plateau splits LST / TST Zubair (126)Biyadh Barremian (129)130 130 LST / TST Buwaib HST Buwaib (132)Hauterivian Spreading between India TST Late Valanginian 135 135 Unconformity Ratawi Sh Valanginian Ratawi Ratawi LST. 0 (139) K20 140 Yamama 140 (141)TST Berriasian HST Major anoxic (144)145 event North Sea, 145 TST Rifting of eastern Sulaiy Mediterranean begins Uplift of western margin (147)TST Tithonian of Arabian Arch) (Hith) . ⊮s⊥ TST (Yemen) 150 150 Madagascar separates Major anoxic event J100 (150.75) • from Ăfrica Europe, S. America J90 (151.5) J80 (152.5) Arab Atlantic begins to open. (Unconformity with major (A - D) Kimmeridgian J70 (154) Jubaila erosion on margin of Arabian Plate) 155 155 Ulayah Hanifa HST Hawtah Oxfordian TST (158)Daddiyah Tuwaiq 160 160 Hadriya HST Maysiyah Mountain Callovian Baladiyah Hisyan Atash Rifting of Indian Plate from (163)Africa begins (Rifting in south Arabian margin, TST 165 165 MIDDLE Bathonian Middle (Iraq) J30 HST Active opening in Gulf of (167)Mexico and North Atlantic SIC Dhruma HST Bajocian 170 170 Lower Short (170)LST / TST S Term \triangleleft Aalenian Curve Long Term \mathcal{L} Curve 175 LST / TST 175 \supset \neg Major anoxic event (Tethys, Europe) Toarcian Marrat 180 180 (180) 185 185 Pliensbachian (Non-Depositional / Erosional Hiatus) Beginning of rifting between North America 190 190 and Africa and in Gulf Sinemurian 195 195 Hettangian Beginning of rifting between East and TRIASSIC 200 Rhaetian West Gondwanaland Minjur Upper Norian Minjur Jurassic-Neogene Arabian Platform Cycle Chart Major Maximum Flooding Proven Source Hiatal Surface LST = Lowstand Systems Tract Sandstone Oil Reservoir Evaporite PHANEROZOIC CYCLES OF SEA-LEVEL (180) et al. (2004) with ages in Ma

Hiatus (Erosional or

I non-depositional)

Scale Change

Potential Source

Interval

Non-associated

Oil and Non-associated

Gas Resrvoir

Gas Reservoir

Carbonate

Shale

calibrated to GTS, 2004]

——— Sequence Boundary (SB)

– – – Higher Frequency SB

– – Inferred MFS

TST = Transgressive Systems Tract

HST = Highstand Systems Tract

