# Gulf of Mexico datapack of biostratigraphy and regional stratigraphy

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| | ***Current contents (Dec, 2012)*** | | | | | |
| | *Standardized to GTS2012 age model* | | | | | |
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| **Gulf of Mexico Biostrat** | | | | | | |
| | SHELL (2008) Oligocene-Recent | | | | | SHELL Late Cenozoic Gulf of Mexico Stratigraphic Chart; compiled by Michael Styzen & Charlotte Jolley (Shell International Exploration & Production), GCSSEPM 2008 |
| | | **Sequences (Gulf of Mexico, SHELL)** | | | | |
| | | | | *Sequence cycle* | | |
| | | | | *Sequences (SHELL)* | | |
| | | **Foraminifers (Gulf of Mexico, SHELL)** | | | | Industry Foraminifera Markers |
| | | | | *Foram Zone (Shell, 2005)* | | |
| | | | | *Foram Subzone (Shell, 2005)* | | |
| | | | | *Shell GoM Foraminifer Markers* | | |
| | | | | *Foram Datum (Shell GoM)* | | |
| | | | | *Industry Foraminifera Markers* | | |
| | | **Nannofossils (Gulf of Mexico, SHELL)** | | | | Industry Nannofossil Markers |
| | | | | *Nanno Zone (Shell, 2005)* | | |
| | | | | *Nanno Subzone (Shell, 2005)* | | |
| | | | | *Shell GoM Nannofossil Markers* | | |
| | | | | *Nanno Datum (Shell GoM)* | | |
| | | | | *Industry Nannofossil Markers* | | |
| | | **Palynology (Gulf of Mexico, SHELL)** | | | | |
| | | | | *Paly Code* | | |
| | | | | *Shell GoM Palynology Markers* | | |
| | | | | | | |
| | FILLON (2003) Cenozoic | | | | | Gulf of Mexico and Tropical-Subtropical Atlantic (Richard H. Fillon, compiler; with contributions by R.G. Lytton III, P.N. Lawless, J.E. Boudreaux, J.T. Christian and B.A. Jenkins; 2003). This is an update of the Lawless et al. (1997) charts. |
| | | **Sequences and Facies (Gulf of Mexico, Fillon'03)** | | | | Ages and magnitudes of sequence boundaries (solid lines) and surfaces of maximum transgression and flooding (dashed) are after Lawless et al. (1997) and Hardenbol et al. (1998). Sequence boundary nomenclature is from Hardenbol et al. (1998), "ME 2", etc., and from Lawless et al. (1997), "(DQB*[3])", etc. Numbers in brackets [ ] refers to sequence order. *= TGS industry designations; ** = this chart. Flooding surface nomenclature is from Lawless et al. (1997). |
| | | | Sequences (Gulf of Mexico, Fillon'03) | | | |
| | | | | *Second-order trends (GoM; Fillon'03)* | | |
| | | | | *Schematic Onlap curve (GoM; Fillon'03)* | | |
| | | | | *GoM sequences (Fillon'03)* | | |
| | | | Gulf of Mexico Lithostrat Units (Paleogene) | | | |
| | | | | *Formation (GoM)* | | |

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| | | | | *Member (GoM)* | | |
| | | | Schematic offshore facies | | | Shelf margin progradations and submarine fan systems |
| | | **Planktonic Foraminifers (Gulf of Mexico, Fillon'03)** | | | | |
| | | | | *WHCZ Codes (Plank. Forams)* | | |
| | | | | *GoM Plank. Foraminifer Markers (Fillon'03)* | | A= abundant; C= common; R= rare; VR = very rare; RHC = Righthand coiling variety; LHC = Lefthand coiling variety; Updip = inner to middle neritic; Downdip = middle neritic to bathyal |
| | | | | *Globorotalia menardii Abundance Zones (high-resolution)* | | After Ericson & Sollin (1968); Kennett & Huddleston (1972); Briskin & Berggren (1975). Adapted for the Pliocene by R.H. Fillon |
| | | | | *Coiling changes (Gt. truncatulinoides)* | | After Lawless et al. (1997) |
| | | | | *Coiling changes (Gt. crassaformis)* | | After Lawless et al. (1997) |
| | | **Benthic Foraminifers (Gulf of Mexico, Fillon'03)** | | | | |
| | | | | *GoM Benthic Foraminifer Zones (Fillon'03)* | | |
| | | | | *WHCZ Codes (Benthic. Forams)* | | |
| | | | | *GoM Benthic Foraminifer Markers (Fillon'03)* | | |
| | | **Calcareous Nannofossils (Gulf of Mexico, Fillon'03)** | | | | |
| | | | | *GoM NN-NP Zones (Fillon'03)* | | |
| | | | | *GoM CC-CP Zones (Fillon'03)* | | |
| | | | | *GoM Nannofossil Zones (Fillon'03)* | | |
| | | | | *WHCZ Codes (Nannos)* | | |
| | | | | *GoM Nannofossil Markers (Fillon'03)* | | |
| | | **Petroleum Industry Biochronozones** *(DASHED ages are midway between labels)* | | | | |
| | | | | *Plank. Foram (Blue)* | | |
| | | | | *Benthic Foram (Green)* | | |
| | | | | *Nannos (Red)* | | |
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| | MMS (2003) Callovian to Recent | | | | | Biostratigraphic Chart of the Gulf of Mexico Offshore Regions (US Dept. Interior; Minerals Management Service). [MMS Gulf of Mexico Resource Evaluation Paleontological Group -- For public release May 1, 2003 -- Robert B. Witrock (504) 736-2718, Tony Friedmann (504) 736-2713, or 1-800-200-GULF [http://www.gomr.mms.gov/homepg/whatsnew/speeches/PPDM-2002.html]] |
| | | **MMS Chronozone** | | | | |
| | | | Cretaceous regional stage | | | |
| | | | Proposed MMS zone | | | |
| | | | Current MMS zone | | | |
| | | **MMS Biostratigraphy** | | | | |
| | | | Planktic and benthic foraminifera and ostracod (O) regional and local markers | | | [Marker age based on even-divisions within stage listing (dual foram/nanno)] |
| | | | Calcareous nannoplanktic regional and local markers | | | [Marker age based on even-divisions within stage listing (dual foram/nanno)] |
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| | PaleoData - Neogene-Late Cretaceous (2011) | | | | | Biostratigraphic Chart of the Gulf Basin, USA -- QUAT-NEOGENE version 11.8 (2011); compiled by: A. S. Waterman, M.W. Center, R.A.. George, N.S. Vallette, A.F. Porter, Jr., T.M. Reilly, R.D. Weber, R.V. Roederer, J. Schmieder, J.A. Sarao, R.H. Fillon; PALEOGENE version 11.8 (2011, by same team); LATE CRETACEOUS version 11.9 (2011, by Center, Waterman, Schmieder and Saroa) Downloaded from www.paleodata.com |
| | | **PaleoData sequence summaries** | | | | |
| | | | PDI and Fillon (2008; 2004) Map Sequences | | | Usually (but not always) begin with GoM MFS levels => tried to align |
| | | | GoM Basin Margin Sequences from Biostratigraphic Signatures | | | MFS "name" (mainly Nanno events) used to FIX position within GTS04 stages |
| | | | Univ. TX GBDS Deposodes | | | |
| | | **PaleoData biostrat summaries** | | | | |
| | | | Planktonic Foraminifers (PaleoData) | | | |
| | | | | *Planktonic Forams Primary Events* | | |
| | | | | *Planktonic Forams Secondary Events* | | |
| | | | Benthic Foraminifers (PaleoData) | | | |
| | | | | *Benthic Foram Primary Events* | | |
| | | | | *Benthic Foram Secondary Events* | | |
| | | | | *Benthic Foram Paleoenvironmental Range* | | |
| | | | Calcareous Nannofossils (PaleoData) | | | |
| | | | | *Nanno Primary Events* | | |
| | | | | *Nanno Secondary Events* | | |
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| **Gulf of Mexico Lithostratigraphy** *(DNAG; linked to on-line USGS Lexicon)* | | | | | | Mainly from (1) Salvador, A. & Quezada Muneton, J.M. (1989) Stratigraphic correlation chart Gulf of Mexico Basin, Vol. Journal of the Geology of North America, Geological Society of America |
| | Gulf of Mexico "deep-water standard" | | | | | |
| | | **S Louisiana - deep ("GoM deep-water standard")** | | | | *South Louisiana - offshore (DNAG column 14) would be the closest to deep water GOM, as the industry is still using lithostratigraphy for chronostratigraphy -- this is not the best practice, but it is the common practice. (Chengjie Liu (ExxonMobil); 3Aug09 e-mail advice to J.Ogg)* |
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| | Mexico (preliminary) | | | | | Mainly from (1) Salvador, A. & Quezada Muneton, J.M. (1989) Stratigraphic correlation chart Gulf of Mexico Basin, Vol. Journal of the Geology of North America, Geological Society of America, (2) Moran-Zenteno, D. (1984; translated 1994) Geology of the Mexican Republic. AAPG Studies in Geology #39, 160 pp., and (3) Mex. Geol. Map (on-line access; using legends of rock succession in different regions). However, none of these contain useful biostrat and facies diagrams summarizing the generalized stratigraphic column. |
| | | **Yucatan Platform** | | | | |
| | | | | *Yucatan - shallow* | | |

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|---|---|---|---|---|---|---|
| | | | | *Yucatan - deep* | | |
| | | **Macuspana Basin - Gulf of Campeche and Villahermosa uplift** | | | | |
| | | | | *Macuspana and Campeche - shallow* | | |
| | | | | *Macuspana and Campeche - deep* | | |
| | | **Sierra de Chiapas** | | | | |
| | | | | *Chiapas - shallow* | | |
| | | | | *Chiapas - shallow to intermediate* | | |
| | | | | *Chiapas - intermediate* | | |
| | | | | *Chiapas - intermediate to deep* | | |
| | | | | *Chipas - deep* | | |
| | | **Comalcalco Basin & Isthmus Saline Basin** | | | | |
| | | | | *Comalcalco & Isthmus - general* | | |
| | | **Veracruz Basin** | | | | |
| | | | | *Veracruz - shallow* | | |
| | | | | *Veracruz - deep* | | |
| | | **Tampico-Misantala Basin** | | | | |
| | | | | *Tampico - shallow* | | |
| | | | | *Tampico - intermediate* | | |
| | | | | *Tampico - deep* | | |
| | | **Sierra Madre Oriental** | | | | |
| | | | | *Sierra Madre Oriental - shallow* | | |
| | | | | *Sierra Madre Oriental - shallow to intermediate* | | |
| | | | | *Sierra Madre Oriental - intermediate to deep* | | |
| | | | | *Sierra Madre Oriental - deep* | | |
| | | **Burgos Basin** | | | | |
| | | | | *Burgos - shallow* | | |
| | | | | *Burgos - deep* | | |
| | | **Sabinas Basin** | | | | |
| | | | | *Sabinas - shallow* | | |
| | | | | *Sabinas - intermediate* | | |
| | | | | *Sabinas - deep* | | |
| | | | | | | |
| | Texas to Alabama | | | | | Salvador, A. & Quezada Muneton, J.M. (1989) Stratigraphic correlation chart Gulf of Mexico Basin, Vol. Journal of the Geology of North America, Geological Society of America. |
| | | **Rio Grande (South Texas)** | | | | |
| | | | | *South Texas - shallow* | | |
| | | | | *South Texas - intermediate* | | |
| | | | | *South Texas - deep* | | |
| | | **San Marcos Arch - Central Texas** | | | | |
| | | | | *Central Texas - shallow* | | |
| | | | | *Central Texas - shallow to intermediate* | | |
| | | | | *Central Texas - intermediate to deep* | | |
| | | | | *Central Texas - deep* | | |
| | | **East Texas Basin** | | | | |
| | | | | *East Texas - shallow* | | |
| | | | | *East Texas - intermediate* | | |
| | | | | *East Texas - deep* | | |
| | | **Southeast Texas, Southwest Louisiana & offshore** | | | | |

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| | | | | *SE Texas, SW Louisiana - shallow* | | |
| | | | | *SE Texas, SW Louisiana - Intermediate* | | |
| | | | | *SE Texas, SW Louisiana - deep* | | |
| | | **South Louisiana and offshore** | | | | |
| | | | | *S Louisiana - shallow* | | |
| | | | | *S Louisiana - deep ("GoM deep-water standard")* | | |
| | | **South Arkansas, North Louisiana & West-central Mississippi** | | | | |
| | | | | *S Arkansas to central Mississippi - shallow* | | |
| | | | | *S Arkansas to central Mississippi - intermediate* | | |
| | | | | *S Arkansas to central Mississippi - deep* | | |
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| | Florida to Mississippi | | | | | Salvador, A. & Quezada Muneton, J.M. (1989) Stratigraphic correlation chart Gulf of Mexico Basin, Vol. Journal of the Geology of North America, Geological Society of America. |
| | | **Southeast Mississippi, Southwest Alabama, W. Florida panhandle & offshore** | | | | |
| | | | | *SE Mississippi, SW Alabama, W. Florida panhandle - offshore* | | |
| | | | | *SE Mississippi, SW Alabama, W. Florida panhandle - intermediate* | | |
| | | | | *SE Mississippi, SW Alabama, W. Florida panhandle - deep* | | |
| | | **Southeast Alabama, Central Florida panhandle & Southwest Georgia** | | | | |
| | | | | *SE Alabama, Florida panhandle & SW Georgia - shallow* | | |
| | | | | *SE Alabama, Florida panhandle & SW Georgia - deep* | | |
| | | **South Georgia & North Florida** | | | | |
| | | | | *S Georgia & N Florida - shallow* | | |
| | | | | *S Georgia & N Florida - intermediate* | | |
| | | | | *S Georgia & N Florida - deep* | | |
| | | **Central and South Florida** | | | | |
| | | | | *S Florida - shallow* | | |
| | | | | *S Florida - intermediate* | | |
| | | | | *S Florida - deep* | | |