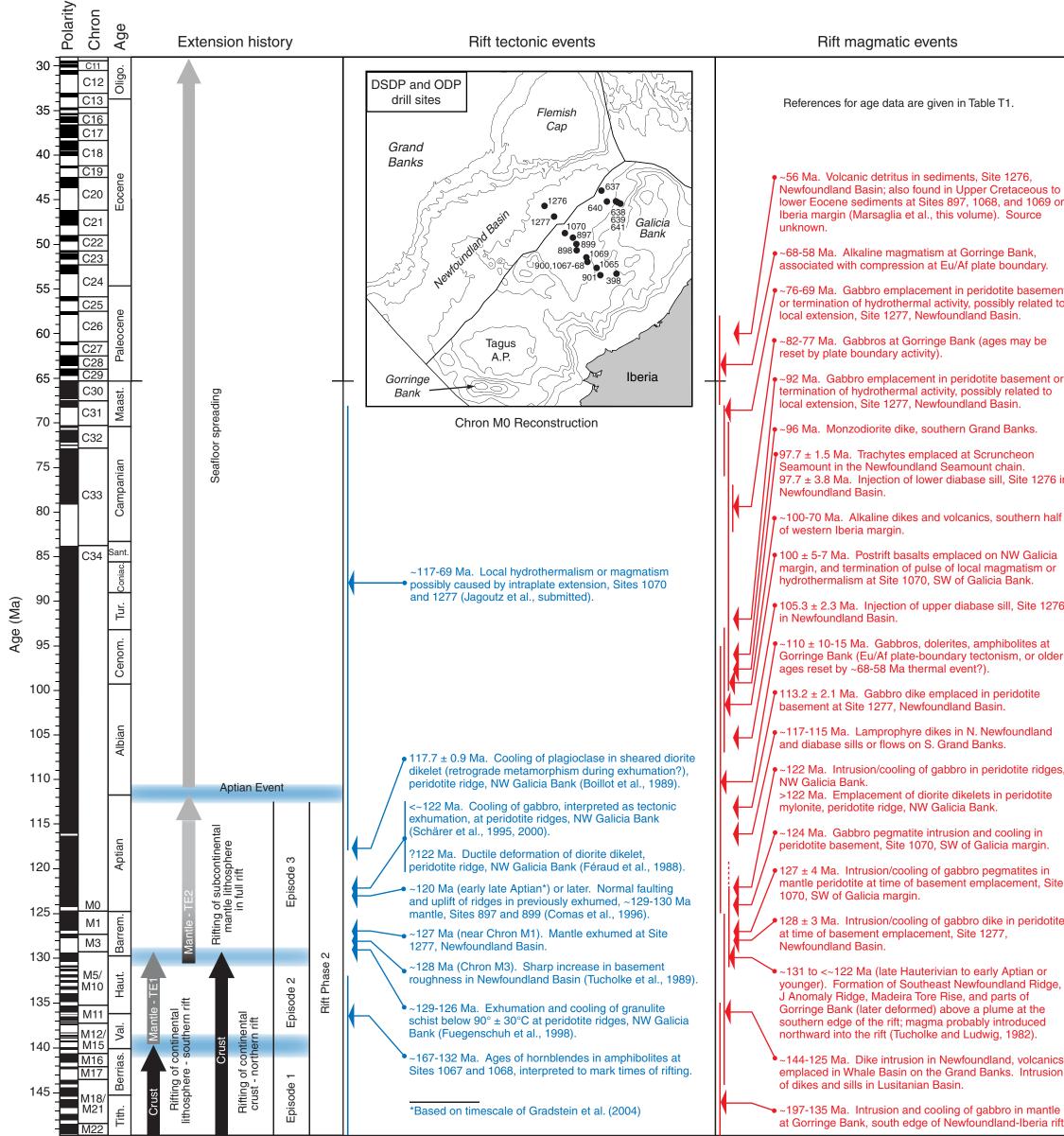
## **ODP** Proceedings, Scientific Results, Volume 210

**Ms 210SR-101, Figure F4.** Summary of tectonic events, magmatic events, sedimentary history, and deep-basin paleoenvironment in the Newfoundland-Iberia rift from latest Jurassic to Paleogene time. The lithology of Site 1276 is summarized at the center of the figure. Formally defined formations of the main North Atlantic Basin (Jansa et al., 1979) are shown at the right, together with middle Cretaceous Oceanic Anoxic Events (Leckie et al., 2002, as modified by Gradstein et al., 2004). CCD = calcite compensation depth.



		Site 1276 lithology	Basin lithology, full rift (Site)	Basin paleoenvironment	Nort Americ Basi formati	can in	Age	
to ) on	? 800 mbsf 1	Primary Lithology ? Possible unconformity - Horizon A <sup>U</sup> . 1 - Brown to green and gray mudstone and claystone (85%), muddy sandstone and sandy mudstone (8%), and grainstone beds that are sharp-based and graded (7%). Hemipelagic deposits with occasional turbidites. Hiatus spanning 1.2-6.9 m.y. (Wood et al., subm.).	Siliceous marly chalk (398).	Initiation of strong, westward-intensified abyssal circulation; seafloor erosion along western basin margins. Oxygenated deep basin. CCD at intermediate-deep (4± km) levels throughout the Paleogene.	-	Ridge Fm.		30 35 40 45
nent d to	2	2 - Greenish gray, dark gray, and olive-black (at top) to reddish, brown, and greenish gray (lower section) grainstone and calcareous sandstone (~40%), marlstone (~40%), and claystone and mudstone (~20%). Deposits are hemipelagic background with dominant sharp-based, graded, and largely calcareous turbidites.	Claystone, siltstone, calcareous claystone and siltstone, intermittent sandstone (897, 1068-1070). — Red to brown marly chalk, marl, claystone (398).	Strong surface water productivity, particularly of siliceous plankton in the main North Atlantic Basin. Sluggish circulation and local reducing conditions at or below the seafloor.	Rarmiida	Rise Fm.	ene	50 55 60
t or — o '6 in half	3	3 - Reddish brown and greenish gray mudstone and claystone (~80%), light gray grainstone and calcareous sandstone (~10%), marlstone (~5%), and calcareous siltstone (~3%). Characterized by thick, muddy turbidites (~85%) interbedded with burrowed hemipelagic sediments (~15%).	Nannofossil chalk, brown to gray claystone, calcareous claystone (1068, 1069). Upper Cretaceous - Brown to yellow-brown claystone (640), variegated claystone (398) and conglomerate, clayey	Deep excursion(s) of the CCD and increased calcareous component in sediments. Crescent F Member Continued shallow CCD. Deposition of multicolored pelagic clays at very slow rates in deep, oxyenated basin.	er	F	mpanian Maast.	65 70 75 80
ia or 276	4	4 - Burrowed reddish brown muddy sandstone, sandstone, and sandy mudstone, deposited at very low sedimentation rates (<3 m/m.y.). May contain hiatuses. Rare gravity-flow deposits with thick, laminated, muddy tops.	sandstone, sandy silty claystone turbidites and debris flows (899).	Abundant turbidity currents and debris flows where transport pathways available. Extensive reworking of sediments by benthic organisms. Oceanic anoxic		Planta	Tur. Coniac	85 90 (
t der	5A 5B	5A - Calcareous sandstone (~80%), minor grainstone, unlaminated marlstone, calcareous mudrock in thick (to 1.65 m), medium to dark gray depositional sequences emplaced by mud-dominated gravity flows. Minor burrow-mottled and generally noncalcareous mudrock. Persistent occurrences of black shales with total organic carbon up to 11.7%.	Brown clay (641), variegated claystone (398, to Paleocene).	OAI "Mid-Cenor	E 2 om."		- Ceuo - Ceuo - 1	95
jes, e i i ite	Schematic facies 22 11230 mit 22 Lithologic unit	<ul> <li>5B - Medium to dark gray mudrock (85%-90%) pervasively burrowed or characterized by subtle planar lamination overprinted by minor but persistent burrowing. Scattered nodules and concretionary bands of diagenetic siderite and dolomite. Occurrences of black shales with total organic carbon up to 4.1%. Rare graded gravity-flow deposits with sand or silt bases.</li> <li>5C - Greenish gray, dark gray, and olive-black sandstone, silty sandstone, grainstone, and mudrock in thick to very thick, graded, gravity-flow</li> </ul>	Black to dark green-gray claystone (398, 641). Variegated claystone, silty claystone, nannofossil chalk (1070). Gray-green to light marlstone, thin calcareous turbidites, black claystone (640, 641).	Deposition of carbon-rich beds during		eras Fm.	otian Alb	105 110 115 20
tite ge,	Scher	deposits (turbidity currents or debris flows; 80%-90% of subunit). Persistent occurrences of black shales with total organic carbon up to 7.8%. Common syndepositional deformation in silty bed tops (load balls, flattened recumbent folds, sheared-out laminae). Very thick structureless calcareous mudstone tops in gravity-flow units. Disorganized beds of silty sandstone with scattered large sedimentary clasts and sharp bed tops (sandy debris-flow deposits).	Gray-green to black claystone (398) (to mid-Cenomanian). Micrite, marlstone, laminated claystone/marlstone, and thin silt and sand turbidites (638, 640, 641). Nannofossil limestone (398). Marlstone and calcareous claystone (638, 640). Sandy turbidites (640) and clayey to sandy turbidites with variable marl component (638).	Transition to shallow CCD. Deep CCD. Pelagic carbonate to marl deposition near or above the CCD in basin areas protected from gravity flows. Abundant reworking of carbonate and terrigenous detritus downslope in		ma Fm.	Haut. Barrem	25 30 35
iics ion tle rift.		Diabase sills were intruded into Subunit 5C (upper sill 105.3 ± 2.3 Ma, lower sill 97.7 ± 3.8 Ma).	Chalk, marlstone (639, 1069). Dolomite (639). Shallow-water limestone, marlstone, dolomite (639). Deeper-water claystone and conglomerate (901, 1065, 1069).	turbidites and debris flows. Shallow-water, pre- to synrift platform carbonate accumulation. Deeper-water detrital/terrigenous deposition in restricted rift basins having probably shallow CCD.		Hand Blake-Bal	Berrias.	40

