GSA DATA REPOSITORY 2011083 Mitchell et al.

SUPPLEMENTARY MATERIAL

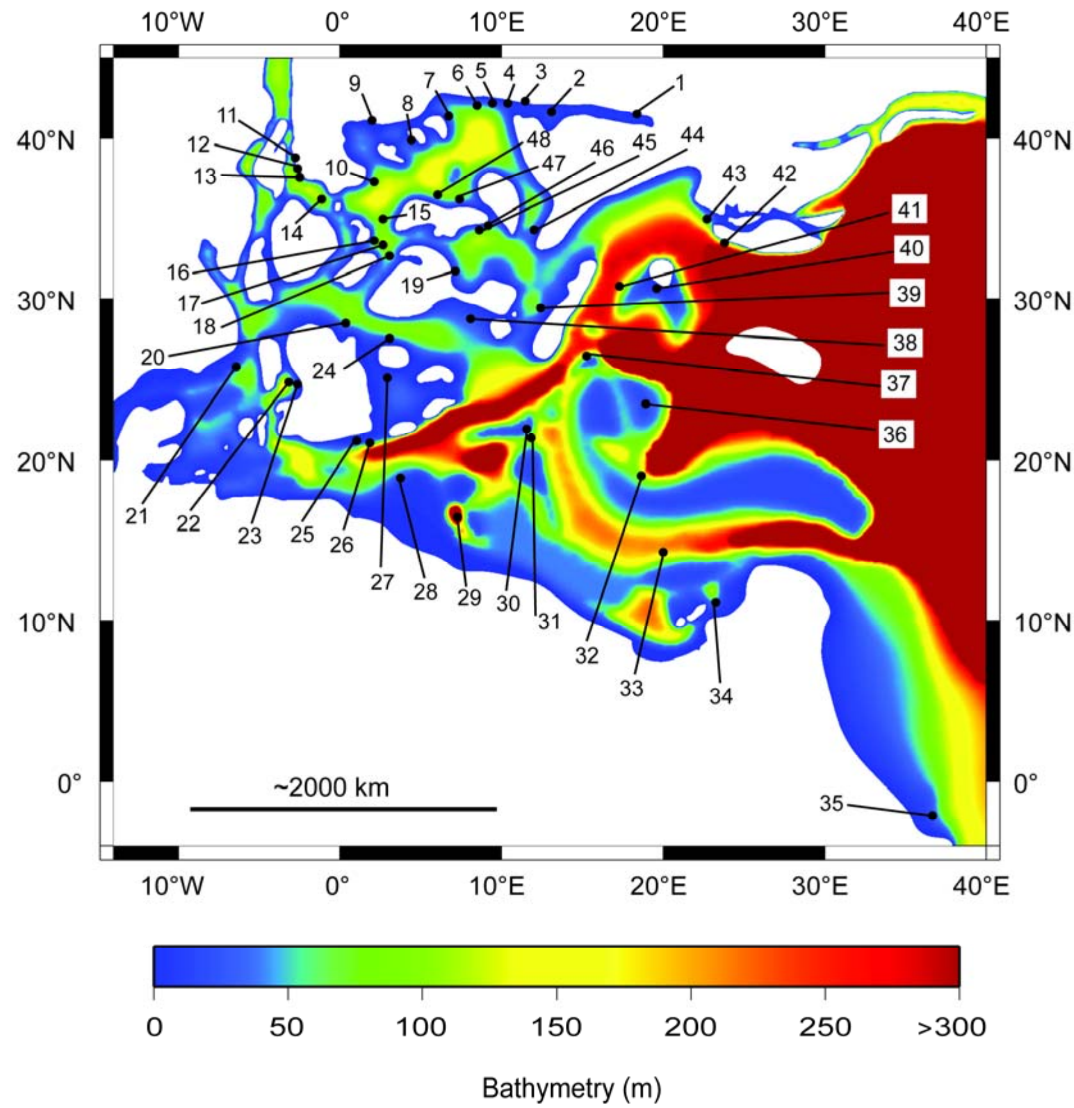

Figure DR1: Detailed paleogeographic reconstruction of the Early Jurassic Laurasian Seaway. Numbered locations correspond to data points where sedimentary data is available for paleobathymetric interpretation (see Table DR1).

Table DR1: Paleobathymetric data for the Early Jurassic Laurasian Seaway listing lithological unit and corresponding sedimentological interpretation. See Figure 4 for locations of data points. Results for tidal range and bed shear stress are presented for the `base case' scenario and bed shear stress variations are summarized over the course of the transgression.

Data Point	Unit Name	Description	Results	Reference(s)
1	Skłobby Fm/Przysucha Fm.	Predominantly nearshore marine (barrier island-lagoonal/deltaic) with some fine grained offshore heterolithics	Tidal range: ~0.3 m Bed shear stress: ~0.01 Nm^{-2} Dry for MSL < base case. Bed shear stress remains roughly constant during flooding when MSL > base case.	Pienkowski (1991)
2	Lower/Middle Mechowo Beds	Wave-dominated nearshore marine (some barrier island-lagoonal and deltaic deposits)	Tidal range: ~0.35 m Bed shear stress: ~0.01 Nm^{-2} Dry for MSL < base case. Bed shear stress remains roughly constant during flooding when MSL > base case.	Pienkowski (1991)
3	Rønne Fm. (Lower Sose Bugt Mm.)	Coarse grained SST, coastal plain to restricted marine	Tidal range: ~0.25 m Bed shear stress: ~0.2 Nm^{-2} Dry for MSL < base case. Maximum bed shear stress at base case, gradually decreases with increasing water depth.	Surlyk et al. (1995)
4	Höör SST (Vittseröd Mm.)	Fine grained shallow marine SST reworked by waves and currents	Tidal range: ~0.55 m Bed shear stress: ~0.07 Nm^{-2} Dry for MSL < base case. Bed shear stress remains roughly constant during flooding when MSL > base case.	Ahlberg et al. (2003)
5	Hogänäs Fm. (Helsingborg Mm.)	Deltaic	Tidal range: ~0.6 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Pienkowski (1991); Ahlberg et al. (2003)
6	Hogänäs Fm. (Helsingborg Mm.)	Deltaic	Tidal range: ~0.6 m Bed shear stress: ~0.01 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Ahlberg et al. (2003)
7	Fjerritslev Fm.	Storm beds/ mud rich offshore marine succession	Tidal range: ~0.6 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Pedersen (1985); Andsjberg & Dybkjær (2003); Michelsen et al. (2003)
8	Gassum Fm.	Deltaic	Tidal range: ~0.55 m Bed shear stress: ~0.14 Nm^{-2} Bed shear stress decreases with flooding.	Bradshaw et al. (1992); Michelsen et al. (2003)
9	Gassum Fm.	Fluvial/shoreface	Tidal range: ~1.0 m Bed shear stress: ~0.03 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases slightly with flooding when MSL > base case.	Hamar et al. (1983); Bradshaw et al. (1992)
10	Redcar Mudstone Fm. (Calcareous Shales Mm.)	Mud dominated offshore marine succession with well sorted shelly deposits	Tidal range: ~0.35 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant through flooding.	van Buchem et al (1992); Rawson & Wright (1995); Simms et al. (2004)
11	Lower Broadford Beds Fm.	Offshore marine calcilutites and shales	Tidal range: ~0.55 m Bed shear stress: ~0.1 Nm^{-2} Bed shear stress generally increases with flooding.	Morton (1987); Morton & Hudson (1995)
12	Lower Broadford Beds Fm.	Offshore marine calcilutites and shales	Tidal range: ~0.3 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress generally increases with flooding.	Morton (1987); Morton & Hudson (1995)

13	Blue Lias Fm.	Offshore marine mudstones and limestones	Tidal range: ~0.4 m Bed shear stress: ~0.04 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Morton (1987); Morton (1992)
14	Waterloo Mudstone Fm.	Offshore marine mudstones and limestones	Tidal range: ~0.35 m Bed shear stress: ~0.01 Nm^{-2} Bed shear stress increases slightly through flooding.	Ivimey-Cook (1975); Simms & Jeram (2007)
15	Blue Lias Fm.	Offshore marine mudstones and limestones	Tidal range: ~0.3 m Bed shear stress: ~0.05 Nm^{-2} Bed shear stress increases slightly through flooding.	cf. Hallam (1960); Cox et al. (1999); Ambrose (2001)
16	Blue Lias Fm. (Sutton Stone)	Nearshore marine coarse grained shelly limestones/breccias	Tidal range: ~0.3 m Bed shear stress: ~0.05 Nm^{-2} Dry for MSL < base case. Bed shear stress remains roughly constant through flooding when MSL > base case.	Sheppard (2007)
17	Blue Lias Fm.	Offshore marine mudstones and limestones	Tidal range: ~0.35 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant during flooding.	Hallam (1960)
18	Blue Lias Fm.	Offshore marine mudstones and limestones	Tidal range: ~0.4 m Bed shear stress: ~0.04 Nm^{-2} Bed shear stress remains roughly constant during flooding.	Hallam (1960)
19	'dolomitic cap rocks'	Restricted nearshore shallow marine dolomites	Tidal range: ~1.25 m Bed shear stress: ~0.03 Nm^{-2} Dry for MSL < base case. Bed shear stress remains roughly constant during flooding when MSL > base case.	Huault et al. (1995)
20	Gijon Fm.	Predominantly subtidal with some interbedded deltaic units	Tidal range: ~0.7 m Bed shear stress: ~0.02 Nm^{-2} Dry for MSL < -15 m. Bed shear stress remains roughly constant during flooding when MSL > -15 m.	Barron et al. (2006)
21	Argo Fm.	Restricted shallow marine evaporites	Tidal range: ~0.75 m Bed shear stress: ~0.01 Nm^{-2} Dry for MSL < -15 m. Bed shear stress remains roughly constant during flooding when MSL > -15 m.	Magoon et al. (2005)
22	Coimbra Fm.	Offshore marine sandy carbonates	Tidal range: ~1.1 m Bed shear stress: ~0.02 Nm^{-2} Dry for MSL < -30 m. Bed shear stress remains roughly constant during flooding when MSL > -15 m.	Alves et al. (2002)
23	Dagorda Fm.	Restricted shallow marine evaporites, dolomites and mudstones	Tidal range: ~1.0m Bed shear stress: ~0.01 Nm^{-2} Dry for MSL < -30 m. Bed shear stress remains roughly constant during flooding when MSL > -15 m.	Ribeiro et al. (1979); Alves et al. (2002.)
24	Puerto de al Palombera Fm.	Shallow water carbonates	Tidal range: ~0.9 m Bed shear stress: ~0.1 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Quesada et al. (2005)
25	Gavilan Fm.	Peritidal dolomites deposited on platform/ramp	Tidal range: ~1.25 m Bed shear stress: ~0.06 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Ruiz-Ortiz et al. (2004)
26	Rio Banco Unit	Marginal marine to offshore carbonate ramp	Tidal range: ~1.1 m Bed shear stress: ~0.05 Nm^{-2} Bed shear stress remains	Braga & Lopez-Lopez (1989)

			roughly constant through flooding.	
27	Lacera Fm.	Nearshore marine evaporites and dolomites	Tidal range: ~0.65 m Bed shear stress: ~0.14 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases slightly with flooding when MSL > base case.	Gomez et a. (2007)
28	Oust Fm.	Shallow marine oolitic to stomatoloitic dolomites and limestones	Tidal range: ~0.9 m Bed shear stress: ~0.4 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases significantly with flooding when MSL > base case.	Kamoun et al. (1999); Kamoun et al. (2001)
29	Streppenosa Fm.	Black shales interbedded with turbiditic carbonates deposited on shelf slope	Tidal range: ~0.8 m Bed shear stress: ~0.5 Nm^{-2} Bed shear stress increases from MSL = -45 m to +15 m before decreasing.	Brosse et al. (1988); Novelli et al. (1988); Yellin-Dror et al. (1997)
30	Calcare Massiccio Fm.	Peritidal carbonate platform	Tidal range: ~0.9 m Bed shear stress: ~0.44 Nm^{-2} Dry for MSL < -15 m. Maximum bed shear stress at base case, gradually decreases with increasing water depth.	Santantonio (1993); Ciarapica (2007)
31	*aungulata* Limestones	Shallow marine marginal carbonate platform	Tidal range: ~0.9 m Bed shear stress: ~0.25 Nm^{-2} Dry for MSL < -15 m. Maximum bed shear stress at base case, gradually decreases with increasing water depth.	Colacicchi et al. (1975); Ciarapica (2007)
32	Drimos Fm.	Limestones deposited in slope from platform margin to abyssal depths	Tidal range: ~1.8 m Bed shear stress: ~0.34 Nm^{-2} Bed shear stress decreases significantly with increasing water depth.	Degnan & Robertson (1998)
33	Chennemdere Fm. (Dibekli Mm.)	Dolomitic limestones in platform setting	Tidal range: ~0.9 m Bed shear stress: ~0.05 Nm^{-2} Bed shear stress remains roughly constant through flooding.	Ozer et al. (2004); Eren et al. (2007)
34	Dereköy Fm.	Deep water siliceous mudstones and cherts with some redeposited mudstones and black shales	Tidal range: ~1.5 m Bed shear stress: ~0.1 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases slightly with flooding when MSL > base case.	Robertson & Woodrock (1981)
35	Musandam Gp.	Peritidal carbonate platform	Tidal range: ~3.6 m Bed shear stress: ~1.8 Nm^{-2} Bed shear stress is consistently high throughout flooding.	Walkden & de Matos (2000)
36	Pantokrator Fm.	Peritidal carbonate platform	Tidal range: ~2.2 m Bed shear stress: ~0.92 Nm^{-2} Dry for MSL < -30 m. Bed shear stress decreases with increasing sea levels.	Pomoni-Papaioannou (2008); Bosence et al. (2009)
37	Kardosret Limestone Fm.	Shallow marine oncoidal micritic limestones	Tidal range: ~2.1 m Bed shear stress: ~1.3 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases with flooding when MSL > base case.	Dulai (1993)
38	Carcans Dolomite Fm.	Nearshore marine dolomites	Tidal range: ~1.85 m Bed shear stress: ~0.5 Nm^{-2} Dry for MSL < -30 m. Bed shear stress rises for MSL -30 m to base case before decreasing.	Biteau et al. (2006)
39	Saint-Pons Dolomite Fm.	Peritidal dolomites	Tidal range: ~1.2 m Bed shear stress: ~0.06 Nm^{-2} Dry for MSL < -15 m. Bed shear stress rises for MSL -30 m to base case before decreasing.	Léonide et al. (2007)

40	Pisznice Limestone Fm.	Shallow carbonate platform crinoidal limestones	Tidal range: ~2.5 m Bed shear stress: ~1.0 Nm^{-2} Dry for MSL < base case. Bed shear stress decreases with flooding when MSL > base case.	Haas & Hámor (2001)
41	Kopieniec Fm.	Subtidal shallow marine mudstones with interbedded limestones	Tidal range: ~3.2 m Bed shear stress: ~0.4 Nm^{-2} Bed shear stress increases from MSL of -45 m to base case before decreasing with further flooding.	Tomaśových (2004); Michalík et al. (2007)
42	Kostina Fm.	Coarse to medium grained shallow marine sandstones	Tidal range: ~1.9 m Bed shear stress: ~0.04 Nm^{-2} Bed shear stress decreases during flooding.	Tchoumatchenko et al. (2006b)
43	Infra Getic Unit	Shallow marine sandstones with bioclastic limestones	Tidal range: ~3.1 m Bed shear stress: ~0.9 Nm^{-2} Dry for MSL < -15 m. Bed shear stress remains high during flooding.	Tchoumatchenko et al. (2006a)
44	Angulata Beds	Iron rich shallow marine high energy oolites	Tidal range: ~1.4 m Bed shear stress: ~0.5 Nm^{-2} Dry for MSL < -30 m. Bed shear stress increase with flooding, peaks at base case before finally decreasing.	Schwab & Spangenberg (2007)
45	Jamoigne Fm.	Restricted shallow marine subtidal marls with sandy-limestones	Tidal range: ~1.0 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant during flooding.	Boulvain et al (2000); Delsate et al. (2002)
46	Luxembourg Sandstone Fm.	Shallow marine tidal sandwaves/deltaic sandstones	Tidal range: ~1.0 m Bed shear stress: ~0.02 Nm^{-2} Bed shear stress remains roughly constant during flooding.	Berners (1983, 1985); Mertens (1983); Van den Bril & Swennen (2009)
47	Aalburg Fm.	Lower shoreface to offshore deposits	Tidal range: ~0.5 m Bed shear stress: ~0.01 Nm^{-2} Dry for MSL > base case. Bed shear stress remains roughly constant during flooding when MSL > base case.	Herngreen et al. (2003); Michelsen et al. (2003)
48	Aalburg Fm.	Lower shoreface to offshore deposits	Tidal range: ~0.5 m Bed shear stress: ~0.001 Nm^{-2} Bed shear stress remains roughly constant during flooding when MSL > base case.	Herngreen et al. (2003); Michelsen et al. (2003)

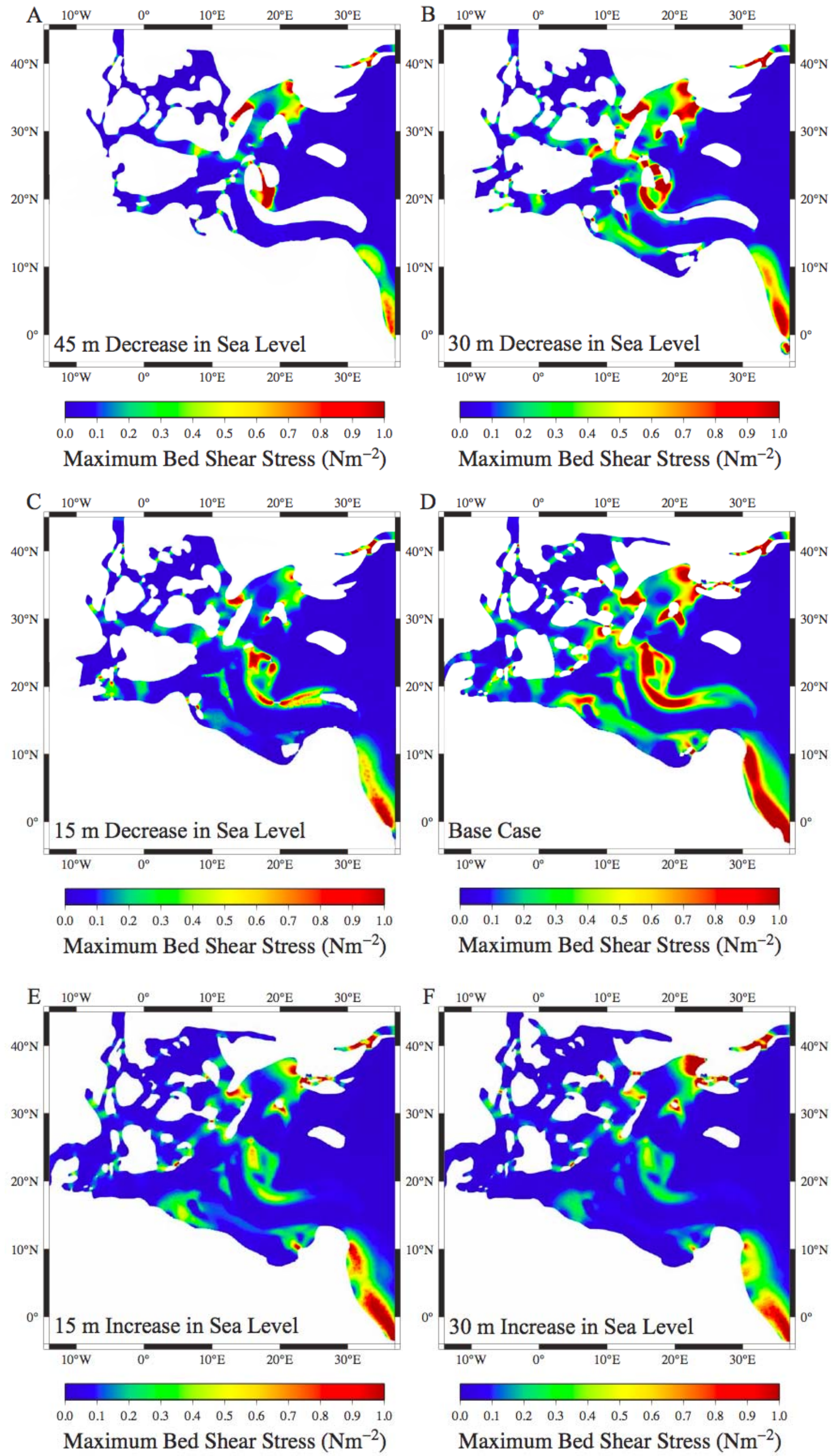

Figure DR2: Maximum bed shear stresses over an idealized 75 m transgression where sea-level varies from -45 m to +30 m relative to the 'base case' scenario.

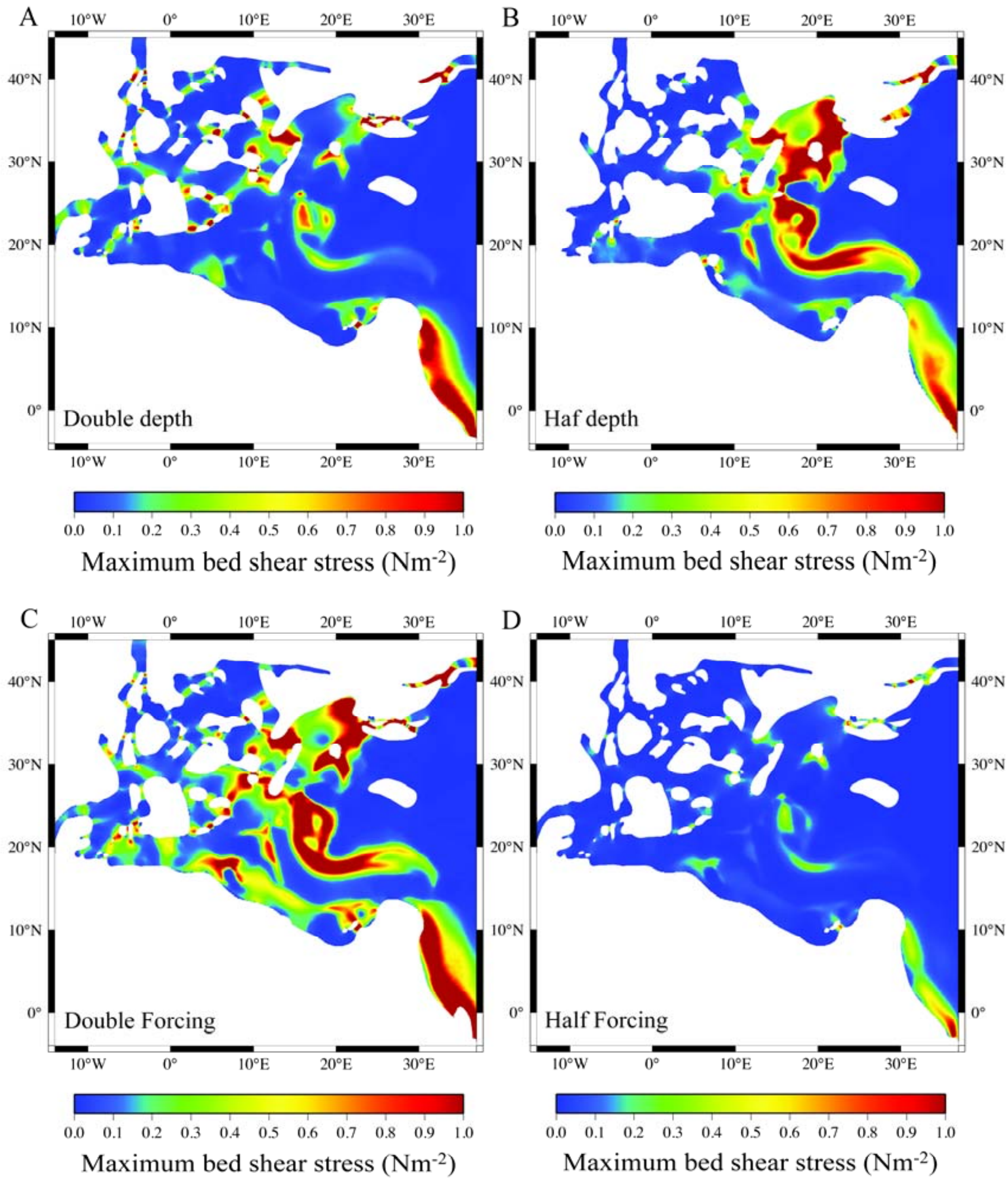

Figure DR3: Sensitivity tests addressing the sensitivity of the tidal circulation in the Laurasian Seaway to changes in water depth and strength of tidal forcing. (A) and (B) show the effects when the depth of water is doubled and halved in the Laurasian Seaway respectively. Increasing the depth reduces the shoaling effect of the tidal wave on the shelf break thus reducing the maximum bed shear stresses relative to the 'base case' (Fig. 3B). As the widths of the straits and the emergent regions remain the same however constriction of the flow within the interior of the seaway is widespread resulting in many localized regions where the bed shear stress exceeds 1.0 Nm^{-2}. Decreasing the depth by half however restricts the elevated maximum bed shear stresses to the shelf break where shoaling is the dominant process. (C) and (D) show the effects of doubling and halving the astronomical forcing potential respectively. Doubling the forcing increases the maximum bed shear stress throughout the domain with the most apparent increases in the east. Decreasing the astronomical forcing potential by half on the other hand limits maximum bed shear stresses to <0.5 Nm^{-2} over the entire Laurasian Seaway.

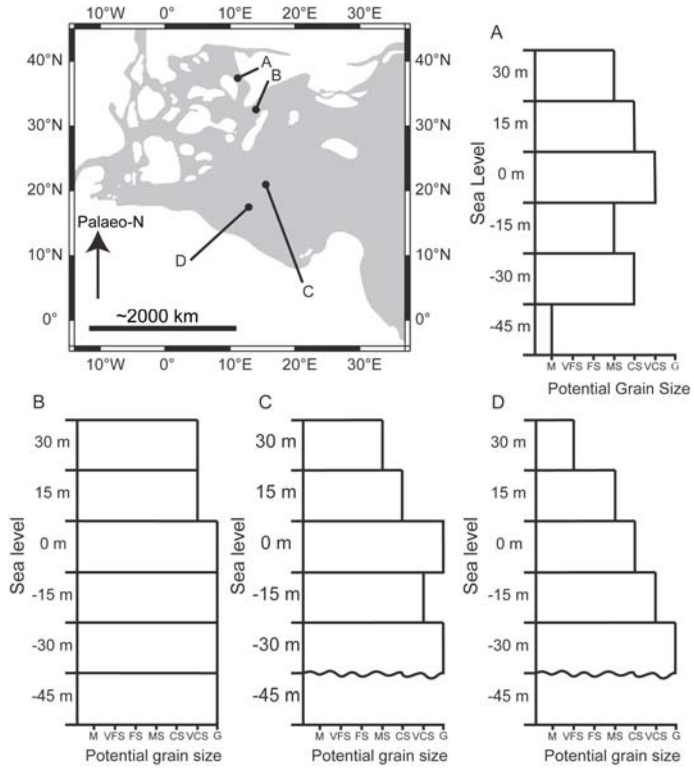

Figure DR4. Synthetic logs drawn at four selected points in the Laurasian Seaway plotting potential grain size variations with rising sea-level through an idealized transgression. Potential grain sizes are as follows: M = mud, VFS = very fine sand, FS = fine sand, MS = medium sand, CS = coarse sand, VCS = very coarse sand and G = gravel. (I) Shows a general upward coarsening trend during transgression between the -45 m and 0 m scenarios at this location. This is caused by local constriction effects becoming more prominent as the tidal wave propagates further into the seaway during flooding. Eventually the drowning of the topography and widening of the straits causes upward shallowing. (II-IV) all show a general upward fining trend that is more typical of transgressions.

SUPPLEMENTARY REFERENCES

Ahlberg, A., Sivhed, U., Erlström, M., 2003, The Jurassic of Skåne, southern Sweden: Geological Survey of Denmark and Greenland Bulletin, v. 1, p. 527-541.

Alves, T. M., Gawthorpe, R. L., Hunt, D. W., Monteiro, J. H., 2002, Jurassic tectono-sedimentary evolution of the Northern Lusitanian Basin (offshore Portugal): Marine Petroleum Geology, v. 19, p. 727-754.

Ambrose, K., 2001, The lithostratigraphy of the Blue Lias Formation (Late Rhaetian-Early

Sinemurian) in the southern part of the English Midlands: Proceedings of the Geologists' Association, v. 112, p. 97-110.

Andsbjerg, J., Dybkjær, K, 2003, Sequence Stratigraphy of the Jurassic of the Danish Central Graben: Geological Survey of Denmark and Greenand Bulletin, v. 1, p. 265-300.

Barrón, E., Gómez, J. J., Goy, A., Pieren, A. P., 2006, The Triassic-Jurassic boundary in Asturais (northern Spain): Palynological characterisation and facies: Review of Palaeobotany and Palynology, v. 138, p. 187-208.

Berners, H. P., 1983, A lower Liassic offshore bar environment, contribution to the sedimentology of the Luxemburg Sandstone: Annales de la Société Géologique de Belgique, v. 106, p. 87-102.

Berners, H. P., 1985, Der Einfluss der Siercker Schwelle auf die Faziesverteilungen meso-känozoischer Sedimente im NE des Pariser Beckens: Ein Sedimentationsmodell zum Luxemburger Sandstein (Lias), spezielle Aspekte zur structurellen Änderung der Beckenconfiguration und zum naturräumlichen Potential [Ph.D. Thesis]: Rheinisch-Westfälischen Technische Hochschule, Aachen, 321 p.

Biteau, J. -J., le Marrec, A., Le Vot, M., Masset, J. -M., 2006, The Aquitaine Basin: Petroleum Geoscience, v. 12, p. 247-273.

Bosence, D., Proctor, E., Aurell, M., Bel Khala, A., Boudagher-Fadel, M., Casaglia, F., Cirilli, S., Mehdie, M., Nieto, L., Rey, J., Scherreiks, R., Soussi, M., Waltham, D., 2009, A dominant tectonic signal in high-frequency, peritidal carbonate cycles? A regional analysis of Liassic platforms from Western Tethys: Journal of Sedimentary Research, v. 79, p. 389-415.

Boulvain, F., Belanger, I., Delsate, D., Dosquet, D., Ghysel, P., Laloux, M., Roche, M., Teerlynck, H., Thorez. J., 2000, New lithostratigraphical, sedimentological, mineralogical and palaeontological data on the Mesozoic of Belgian Lorraine: a progress report: Geologica Belgica, v. 3, no. 1-2, p. 3-33.

Bradshaw, M. J., Cope, J. C. W., Cripps, D. W., Donovan, D. T., Howarth, M. K., Rawson, P. F., West, I. M., Wimbledon, W. A., 1992, Jurassic, *in* Cope, J. C. W., Ingram, J. K., Rawson, P. F., eds., Atlas of Palaeogeography and Lithofacies: London, Geological Society, London, Memoirs, v. 13, p. 107-129.

Braga, J. C., Lopez-Lopez, J. R., 1989, Serpulid bioreconstructions at the Triassic-Liassic boundary in Southern Spain: Facies, v. 21, p. 1-10.

Brosse, E., Loreau, J. P., Huc, A. Y., Frixa, A., Martellini, L., Riva, A., 1988, The organic matter of interlayered carbonates and clays sediments – Trias/Lias, Sicily, *in* Mattavelli L., and Novelli, L., eds., Advances in Organic Geochemistry: Oxford, Pergamon Press, International Meeting on Organic Geochemistry v. 13, no. 1-3, p. 433-443.

van Buchem, F. S. P., Melnyk, D. H., McCave, I. N., 1992, Chemical cyclicity and correlation of Lower Lias mudstones using gamma ray logs, Yorkshire, UK: Journal of the Geological Society, London, v. 149, p. 991-1002.

Ciarapica, G., 2007, Regional and global changes around the Triassic-Jurassic boundary reflected in late Norian-Hettangian history of the Apennine basins: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 244, p. 34-51.

Colacicchi, R., Passeri, L., Pialli, G., 1975, Evidence of tidal environment deposition in the Calcare Massiccio Formation (Central Apennines, Lower Lias), *in* Ginsburg, R. N. ed., Tidal deposits: a casebook of recent examples and fossil counterparts: Berlin, Springer-Verlag, p. 345-353.

Cox, B. M., Sumbler, M. G., Ivimey-Cook, H. C., 1999, A formational framework for the Lower Jurassic of England and Wales (onshore area): British Geological Survey Research Report, RR/99/01, 30 p.

Delsate, D., Duffin, C. J., Weis, R., 2002, A new microvertebrate fauna from the Middle Hettangian (Early Jurassic) of Fontenoille (Province of Luxembourg, south Belgium): Memoirs of the Geological Survey of Belgium, v. 48, p. 3-84.

Degnan, P. J., Robertson, A. H. F., 1998, Mesozoic-early Tertiary passive margin evolution of the Pindos ocean (NW Peloponnese, Greece): Sedimentary Geology, v. 117, p. 33-70.

Dulai, A., 1993, Hettangian (Early Jurassic) megafauna and palaeogeography of the Bakony Mts (Hungary), *in* Palfy, J., Vörös, A., eds., Mesozoic Gastropods of Alpine Europe: Budapest, Hungarian Geological Society, p. 31-37.

Eren, M., Tasli, K., Tol, N., 2002, Sedimentology of the liassic carbonates (Pirencik Tepe measured section) in the Aydincik (Içel) area, southern Turkey: Journal of Asian Earth Sciences, v. 20, p. 971-801.

Gomez, J. J., Goy, A., Barrón, E., 2007, Events around the Triassic-Jurassic boundary in northern and eastern Spain: a review: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 244, p. 89-110.

Haas, J., Hámor, G., 2001, Geological garden in the neighborhood of Budapest, Hungary: Episodes, v. 24, no. 4, p. 257-261.

Hallam, A., 1960, A sedimentary and faunal study of the Blue Lias of Dorset and Glamorgan: Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, v. 243, no. 698, p. 1-44.

Hamar, G. P., Fjaeran, T., Hesjedal, A., 1983, Jurassic stratigraphy and tectonics of the south-southeastern Norwegian offshore: Geologie en Mijnbouw, v. 62, p. 103-114.

Herngreen, G. F. W., Kouwe, W. F. P., Wong, T. E., 2003, The Jurassic of the Netherlands: Geological Survey of Denmark and Greenland Bulletin, v. 1, p. 217-229.

Huault, V., Merzeraud, G., Rauscher, R., Schuler, M., 1995, Palynological variations and sedimentary cucles in the Jurassic from the Paris Basin: Review of Palaeobotany and

Palynology, v. 87, p. 27-41.

Ivimey-Cook, H. C., 1975, The stratigraphy of the Rhaetic and Lower Jurassic in the East Antrim: Bulletin of the Geological Survey of Great Britain, v. 50, p. 51-69.

Kamoun, F., Peybernès, B., Fauré, P., 1999, Èvolution paléogéographique de la Tunisie saharienne et altasiqueau cours du Jurassique: Earth and Planetary Science Letters, v. 328, p. 547-552.

Kamoun, F., Peybernès, B., Ciszak, R., Calzada, S., 2001, Traissic palaeogeography of Tunisia: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 172, p. 223-242.

Léonide, P., Floquet, M., Villier, L., 2007, Interaction of tectonics, eustasy, climate and carbonate production on the sedimentary evolution of an early/middle Jurassic extensional basin (Southern Provence Sub-basin, SE France): Basin Research, v. 19, p. 125-152.

Magoon, L. B., Hudson, T. L., Peters, K. E., 2005, Egret-Hibernia(!), a significant petroleum system, northern Grand Banks area, offshore eastern Canada: American Association of Petroleum Geologists Bulletin, v. 89, no. 9, p. 1203-1237.

Mertens, G., Spies, E. -D., Teyssen, T., 1983, The Luxemburg Sandstone Formation (Lias), a tide-controlled deltaic deposit: Annales de la Société Géologique de Belgique, v. 106, p. 103-109.

Michalík, J., Lintnerová, O., Gaździcki, A., Soták, J., 2007, Record of environmental changes in the Triassic–Jurassic boundary interval in the Zliechov Basin, Western Carpathians: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 244, p. 71-88.

Michelsen, O., Nielsen, L. H., Johannessen, P. N., Andsjberg, J., Surlyk, F., 2003, Jurassic lithostratigraphy and stratigraphic deveopmentonshore and offshore Denmark: Geological Society of Denmark and Greenland Bulletin, v. 1, p. 147-216.

Morton, N., 1987, Jurassic subsidence history in the Hebrides, N. W. Scotland: Marine and Petroleum Geology, v. 4, p. 226-242.

Morton, N., 1992, Late Triassic to Middle Jurassic stratigraphy, palaeogeography and tectonics west of the British Isles, *in* Parnell, J., ed., Basins of the Atlantic Seaboard: Petroleum Geology, Sedimentology and Basin Evolution: London, Geological Society, London, Special Publication v. 62, p. 53-68.

Morton, N., Hudson, J. D., 1995, Field guide to the Jurassic of the Isles of Raasay and Skye, Inner Hebrides, NW Scotland, *in* Taylor, P. D., ed., Field Geology of the British Jurassic: London, Geological Society Publishing House, p. 209-280.

Novelli, L., Welte, D. H., Mattavelli, L., Yalçin, M. N., Cinelli, D., Schmidt, K. J., 1988, Hydrocarbon generation in southern Sicily. A three dimensional computer aided basin modelling study, *in* Mattavelli L., and Novelli, L., eds., Advances in Organic Geochemistry: Oxford, Pergamon Press, International Meeting on Organic Geochemistry v. 13, no. 1-3, p. 153-164.

Ozer, E., Koz, H., Ozsayer, T. Y., 2004, Stratigraphical evidence for the depression of the northern margin of the Menderes Tauride Bock (Turkey) during the Late Cretaceous: Journal of Asian Earth Sciences, v. 22, p. 401-412.

Pedersen, G. K., 1985, Thin fine-grained storm layers in a muddy shelf sequence: an example from the Lower Jurassic in the Stenlille 1 well, Denmark: Journal of the Geological Society, London, v. 142, p. 357-374.

Pieńkowski, G., 1991, Eustatically-controlled sedimentation in the Hettangian-Sinemurian (Early Jurassic) of Poland and Sweden: Sedimentology, v. 38, p. 503-518.

Pomoni-Papaioannou, F., 2008, Facies analysis of Lofer cycles (Upper Triassic), in the Argolis Penninsula (Greece): Sedimentary Geology, v. 208, p. 79-87.

Quesada, S., Robles, S., Rosales, I., 2005, Depositional architecture and transgressive-regressive cycles within Liassic backstepping carbonate ramps in the Basque-Cantabrian basin, northern Spain: Journal of the Geological Society, London, v. 162, p. 531-548.

Rawson, P, F., Wright, J. K., 1995, Jurassic of the Cleveland Basin, North Yorkshire, *in* Taylor, P. D., ed., Field Geology of the British Jurassic: London, Geological Society Publishing House, p. 173-208.

Ribeiro, A., Antunes, M. T., Ferreira, M. P., Rocha, R. B., Soares, A. F., Zbyszewski, G., Moitinho de Almeida, F., Carvalho, D., Monteiro, J. H., 1979, Introduction à la Géologie generale du Portugal: Lisbon, Edições dos Serviços Geológicos de Portugal, 114 p.

Robertson, A. H. F., Woodrock, N. H., 1981, Bilelyeri Group, Antalya Complex: deposition on a Mesozoic passive continental margin, South-west Turkey: Sedimentology, v. 28, p. 381-399.

Ruiz-Ortiz, P. A., Bosence, D. W. J., Rey, J., Nieto, L. M., Castro, J. M., Molina, J. M., 2004, Tectonic control of facies architecture, sequence stratigraphy and drowning of a Liassic carbonate platform (Betic Cordillera,Southern Spain): Basin Research, v. 16, p. 235-257

Santantonio, M., 1993, Facies associations and evolution of pelagic carbonate platform/basin systems: examples from the Italian Jurassic: Sedimentology, v. 40, p. 1039-1067.

Schwab, V. F., Spangenberg, J. E., 2007, Molecular and isotopic characterization of biomarkers in the Frick Swiss Jura sediments: A palaeoenvironmental reconstruction on the Northern Tethys margin: Organic Geochemistry, v. 38, p. 419-439.

Simms, M. J., Chidlaw, N., Morton, N., Page, K. N., 2004, British Lower Jurassic Stratigraphy: Peterborough, Geological Conservation Review Series, no. 30, Joint Nature Conservation Committee, 458 p.

Simms, M. J., Jeram, A. J., 2007, Waterloo Bay, Larne, Northern Ireland: a candidate Global Stratotype Section and Point for the base of the Hettangian Stage and Jurassic System: ISJS Newsletter, v. 34, no. 1, p. 50-68.

Surlyk, F., Arndorff, L., Hamann, H.-E., Hamberg, H., Johannessen, P. N., Koppelhus, E. B., Nielsen, L. H., Now-Nygaard, N., Pedersen, G. K., Petersen, H. I., 1995, High-resolution sequence stratigraphy of a Hettangian-Sinemurian paralic succession, Bornholm, Denmark:

Sedimentology, v. 42, p. 323-354.

Sheppard, T. H., 2007, Sequence architecture of ancient rocky shorelines and their response to sea-level change: an Early Jurassic example from South Wales, UK: Journal of the Geological Society, London, v. 163, p. 595-606.

Tchoumatchenco, P., Rabrenović, D., Radulović, B., Radulović, V., 2006a, Trans-border (east Serbia/west Bulgaria) correlation of the Jurassic sediments: main Jurassic paleogeographic units: Annales Géologiques de la Péninsule Balkanique, v. 67, p. 13-17.

Tchoumatchenco, P., Rabrenović, D., Radulović, B., Radulović, V., 2006b, Trans border (south-east Serbia/west Bulgaria) correlations of the Jurassic sediments: Infra-Getic Unit: Annales Géologiques de la Péninsule Balkanique, v. 67, p. 19-33.

Tomašových, A., 2004, Microfacies and depositional environment of an Upper Triassic intra-platform carbonate basin: the Fatra Unit of the West Carpathians (Slovakia): Facies, v. 50, no.1, p. 77-105.

Van den Bril, K., Swennen, R., 2008, Sedimentalogical control on carbonate cementation in the Luxembourg Sandstone Formation: Geologica Belgica, v. 12, no. 1-2, p. 3-23.

Walkden, G. M., de Matos, J., 2000, "Tuning" High-frequency cyclic carbonate platform successions using omission surfaces: Lower Jurassic of the U.A.E. and Oman, *in* Alsharhan, A. S., Scott, R. W., eds., Middle East Models of Jurassic/Cretaceous Carbonate Systems: SEPM Special Publication, no. 69, p.17-31.

Yellin-Dror, A., Grasso, M., Ben-Avraham, Z., Tibor, G., 1997, The subsidence history of the Northern Hyblean plateau margin, southeastern Sicily: Tectonophysics, v. 282, p. 277-289.