Data Repository Item

Life span and fate of basins

TABLE DR1. BASIN LIFE SPAN RAW DATA AND SOURCE REFERENCE

Basin name	Basin type	Type code	Start age (Ma)	Finish age (Ma)	Life span (m.y.)	Data source
Illinois	intracratonic	1	495	290	205	Klein, 1995
Paris	intracratonic	1	260	50	210	Einsele, 2000
Williston	intracratonic	1	510	290	220	Klein, 1995
Michigan	intracratonic	1	515	290	225	Klein, 1995
North Sea total	intracratonic	1	250	0	250	Glennie, 1997
Parana	intracratonic	1	440	70	370	Einsele, 2000
Amadeus	intracratonic	1	800	362	438	Klein, 1995
Rhine Graben south	rift	2	40	32	8	Einsele, 2000
Red Sea rift	rift	2	33	23	10	Einsele, 2000
East African rift west	rift	2	12	0	12	Einsele, 2000
Rhine Graben central	rift	2	40	23	17	Einsele, 2000
North Sea Permo-Trias	rift	2	265	242	23	Glennie, 1997
New Jersey, COST B2	rift	2	180	155	25	Bond et al., 1995
North Sea late Jur	rift	2	156	130	26	Glennie, 1997
Rhine Graben north	rift	2	40	10	30	Einsele, 2000
South Australia syn-rift	rift	2	130	100	30	Einsele, 2000
Gulf of California rift	rift	3	22	4	18	Einsele, 2000
Red Sea rift	rift	3	33	5	28	Einsele, 2000
South Australia total	continental margin	4	100	0	100	Einsele, 2000
Biscay/ Goban Spur	continental margin	4	120	0	120	Einsele, 2000
NW Atlantic (Hibernia)	continental margin	4	170	0	170	Einsele, 2000
New Jersey, COST B2	continental margin	4	180	0	180	Bond et al., 1995
Atlantic margin USA	continental margin	4	210	0	210	Einsele, 2000
Atlantic north	ocean	5	60	0	60	Scotese et al., 1988
Southern (Australia)	ocean	5	119	0	119	Scotese et al., 1988
Indian west	ocean	5	134	0	134	Scotese et al., 1988
Southern (Africa)	ocean	5	135	0	135	Scotese et al., 1988
Atlantic south	ocean	5	136	0	136	Scotese et al., 1988
Atlantic central	ocean	5	158	0	158	Scotese et al., 1988
Pacific west	ocean	5	175	0	175	Scotese et al., 1988
Cascadia trench	trench	6			0.1	Einsele, 2000
Middle America Trench	trench	6			0.14	Leggett, 1982
Barbados trench	trench	6			0.25	Einsele, 2000
Aleutian Trench	trench	6			0.28	Leggett, 1982
Nankai Trough	trench	6			0.4	Leggett, 1982
Makran	trench	6			0.69	Leggett, 1982
Japan trench	trench	6			0.8	Einsele, 2000
Japan trench	trench-slope	7	2	0	2	Leggett, 1982
Yaquina	trench-slope	7	7	0	7	Leggett, 1982
Sunda trench-slope	trench-slope	7	15	0	15	Einsele, 2000
Nankai	forearc	8	5	0	5	Einsele, 2000

Basin name	Basin type	Type code	Start age (Ma)	Finish age (Ma)	Life span (m.y.)	Data source
Luzon forearc	forearc	8	10	0	10	Dickinson, 1995
Alaska forearc	forearc	8	15	0	15	Dickinson, 1995
Cascades forearc	forearc	8	15	0	15	Dickinson, 1995
Coastal Range, Taiwan	forearc	8	20	3	17	Dickinson, 1995
Columbia forearc	forearc	8	20	0	20	Einsele, 2000
Sarawak	forearc	8	28	4	24	Dickinson, 1995
Sunda forearc	forearc	8	25	0	25	Einsele, 2000
Central Andes forearc	forearc	8	28	0	28	Dickinson, 1995
Cascades forearc	forearc	8	29	0	29	Dickinson, 1995
Guatemala forearc	forearc	8	30	0	30	Einsele, 2000
Kermadec forearc	forearc	8	30	0	30	Dickinson, 1995
Solomons forearc	forearc	8	30	0	30	Dickinson, 1995
Aleutian forearc	forearc	8	33	0	33	Dickinson, 1995
Tonga forearc	forearc	8	35	0	35	Dickinson, 1995
Cascadia forearc	forearc	8	40	0	40	Einsele, 2000
Great Basin	forearc	8	65	25	40	Einsele, 2000
Central Andes forearc	forearc	8	44	0	44	Dickinson, 1995
Tobago trough	forearc	8	45	0	45	Dickinson, 1995
Ochoco, Oregon	forearc	8	210	150	60	Dickinson, 1995
Xigaze forearc	forearc	8	90	25	65	Einsele, 2000
Vizcaino, Baja California	forearc	8	150	70	80	Dickinson, 1995
Great Basin total	forearc	8	150	25	125	Einsele, 2000
Taupo Volcanic zone	intra-arc	9	2	0	2	Smith and Landis, 1995
Median trough Nicaragua	intra-arc	9	6	0	6	Smith and Landis, 1995
Vanuatu, New Hebrides	intra-arc	9	6	0	6	Smith and Landis, 1995
High Cascades	intra-arc	9	9	2	7	Smith and Landis, 1995
Izu-Bonin-Mariana arc	intra-arc	9	8	0	8	Smith and Landis, 1995
Marinduque, Phillipines	intra-arc	9	10	2	8	Smith and Landis, 1995
Kallinago, Antilles	intra-arc	9	9	0	9	Smith and Landis, 1995
New Hebrides	intra-arc	9	29	20	9	Smith and Landis, 1995
Altiplano	intra-arc	9	24	10	14	Smith and Landis, 1995
Lauca basin, Chile	intra-arc	9	20	2	18	Einsele, 2000
Okinawa Trough	backarc rift	10	2	0	2	Tamaki and Honza, 1991
Sulu	backarc rift	10	19	17	2	Tamaki and Honza, 1991
Lau-Havre	backarc rift	10	4	0	4	Tamaki and Honza, 1991
Manus	backarc rift	10	4	0	4	Tamaki and Honza, 1991
Woodlark	backarc rift	10	4	0	4	Tamaki and Honza, 1991
Solomon backarc	backarc rift	10	40	35	5	Tamaki and Honza, 1991
East Scotia	backarc rift	10	7	0	7	Tamaki and Honza, 1991
Mariana	backarc rift	10	7	0	7	Tamaki and Honza, 1991
Caroline	backarc rift	10	36	28	8	Tamaki and Honza, 1991
Coral Sea	backarc rift	10	64	56	8	Tamaki and Honza, 1991
North Fiji	backarc rift	10	8	0	8	Tamaki and Honza, 1991
South Fiji	backarc rift	10	34	25	9	Tamaki and Honza, 1991
Sea of Japan	backarc rift	10	25	15	10	Tamaki and Honza, 1991
Shikoku	backarc rift	10	25	15	10	Tamaki and Honza, 1991
Andaman	backarc rift	10	11	0	11	Tamaki and Honza, 1991
Parece Vela	backarc rift	10	30	17	13	Tamaki and Honza, 1991

Basin name	Basin type	Type code	Start age (Ma)	Finish age (Ma)	Life span (m.y.)	Data source
Loyalty	backarc rift	10	55	41	14	Tamaki and Honza, 1991
Celebes	backarc rift	10	57	42	15	Tamaki and Honza, 1991
South China	backarc rift	10	32	17	15	Tamaki and Honza, 1991
West Phillippine	backarc rift	10	60	35	25	Tamaki and Honza, 1991
Sulu	mature backarc	11	19	0	19	Tamaki and Honza, 1991
Sea of Japan	mature backarc	11	25	0	25	Tamaki and Honza, 1991
Shikoku	mature backarc	11	25	0	25	Tamaki and Honza, 1991
Parece Vela	mature backarc	11	30	0	30	Tamaki and Honza, 1991
South China	mature backarc	11	32	0	32	Tamaki and Honza, 1991
South Fiji	mature backarc	11	34	0	34	Tamaki and Honza, 1991
Caroline	mature backarc	11	36	0	36	Tamaki and Honza, 1991
Solomon backarc	mature backarc	11	40	0	40	Tamaki and Honza, 1991
Loyalty	mature backarc	11	55	0	55	Tamaki and Honza, 1991
Celebes	mature backarc	11	57	0	57	Tamaki and Honza, 1991
West Phillippine	mature backarc	11	60	0	60	Tamaki and Honza, 1991
Coral Sea	mature backarc	11	64	0	64	Tamaki and Honza, 1991
Banda	trapped backarc	12	18	0	18	Tamaki and Honza, 1991
Aleutian backarc	trapped backarc	12	45	0	45	Tamaki and Honza, 1991
Tasman	trapped backarc	12	50	0	50	Tamaki and Honza, 1991
Caribbean	trapped backarc	12	60	0	60	Tamaki and Honza, 1991
Berjemo (Andes)	retroarc	13	18	2	16	Jordan, 1995
Andean	retroarc	13	23	0	23	Jordan, 1995
Western Interior Hoback	retroarc	13	105	60	45	Jordan, 1995
Eastern Venezuala	retroarc	13	50	0	50	Macqueen and Leckie, 1992
W Interior NW Montana	retroarc	13	115	65	50	Jordan, 1995
Wn Interior SW Montana	retroarc	13	115	60	55	Jordan, 1995
Sevier belt	retroarc	13	92	80	12	Cross, 1986
Apennine foredeep	peripheral foreland	14	23	8	15	Einsele, 2000
North Alpine foredeep	peripheral foreland	14	38	14	24	Einsele, 2000
Windermere Supergroup	peripheral foreland	14	440	418	24	Kneller, 1991
Catskills	peripheral foreland	14	388	362	26	Miall, 1995
Swiss molasse	peripheral foreland	14	37	10	27	Einsele, 2000
Ebro Basin	peripheral foreland	14	55	25	30	Einsele, 2000
Zagros	peripheral foreland	14	37	0	37	Macqueen and Leckie, 1992
Sub-Himalayan	peripheral foreland	14	44	0	44	Einsele, 2000
Taiwan	peripheral foreland	14	4	0	4	Covey, 1986
Timor Trough	peripheral foreland	14	3.4	0	3.4	Audley-Charles, 1986
Quebec Taconic	peripheral foreland	14	458	445	13	Hiscott et al., 1986
Vienna	strike-slip	15	16.5	13	3.5	Einsele, 2000
Guaymas	strike-slip	15	4	0	4	Einsele, 2000
Dead Sea (s-s phase)	strike-slip	15	5	0	5	Einsele, 2000
La Gonzalez	strike-slip	15	5	0	5	Nilsen and Sylvester, 1995
Ventura	strike-slip	15	10	2	8	Nilsen and Sylvester, 1995
Ridge	strike-slip	15	12	2	10	Nilsen and Sylvester, 1995
Los Angeles	strike-slip	15	11	0	11	Einsele, 2000
Salton trough	strike-slip	15	12	0	12	Nilsen and Sylvester, 1995
Cayman	strike-slip	16	45	0	45	Tamaki and Honza, 1991

TABLE DR2. MEANS AND STANDARD DEVIATIONS OF BASIN LIFE SPANS

Basin type	Type code	Sample size	Mean (m.y.)	Standard deviation
intracratonic	1	7	274.0	92.1
rift	2	11	20.6	8.1
continental margin	4	5	156.0	45.1
ocean	5	7	131.0	36.3
trench	6	7	0.4	0.3
trench-slope	7	3	8.0	6.6
forearc	8	23	36.7	26.2
intra-arc	9	10	8.7	4.4
rifted backarc	10	20	9.1	5.5
mature backarc	11	12	39.8	15.4
trapped backarc	12	4	43.3	18.0
retro-arc foreland	13	7	35.9	18.2
peripheral foreland	14	11	22.5	12.7
strike-slip	15	8	7.3	3.4

References cited

Audley-Charles, M., 1986, Timor-Tanimbar Trough: the foreland basin of the evolving Banda orogen, *in* Allen, P. A., and Homewood, P., eds., Foreland basins: Special Publications of the International Association of Sedimentologists, v. 8, p. 91-102.

Bond, G. C., Kominz, M. A., and Sheridan, R. E., 1995, Continental terraces and rises, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 149-178.

Covey, M., 1986, The evolution of foreland basins to steady state: evidence from the western Taiwan foreland basin, *in* Allen, P. A., and Homewood, P., eds., Foreland basins: Special Publications of the International Association of Sedimentologists, v. 8, p. 77-90.

Cross, T. A., 1986, Tectonic controls of foreland basin subsidence and Laramide style deformation, western United States, *in* Allen, P. A., and Homewood, P., eds., Foreland basins: Special Publications of the International Association of Sedimentologists, v. 8, p. 15-39.

Dickinson, W. R., 1995, Forearc basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 221-261.

Einsele, G., 2000, Sedimentary basins: evolution, facies and sediment budget: Berlin, Springer, 792 p.

Glennie, K. W., 1997, Petroleum geology of the North Sea: Oxford, Blackwell Science, p. 636.

Hiscott, R. N., Pickering, K. T., and Beeden, D. R., 1986, Progressive filling of a confined Middle Ordovician forland basin associated with the Taconic Orogeny, Quebec, Canada, *in* Allen, P. A., and Homewood, P., eds., Foreland basins: Special Publications of the International Association of Sedimentologists, v. 8, p. 309-325.

Jordan, T. E., 1995, Retroarc foreland and related basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 331-362.

Klein, G. D., 1995, Intracratonic basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 459-478.

Kneller, B. C., 1991, A foreland basin on the southern margin of Iapetus: Journal of the Geological Society, London, v. 148, p. 207-210.

Leggett, J. K., 1982, Trench-forearc geology: sedimentation and tectonics on modern and ancient active plate margins, Geological Society, London, Special Publication, p. 576.

Macqueen, R. W., and Leckie, D. E., 1992, Foreland basins and fold belts, American Association of Petroleum Geologists, Memoir.

Miall, A. D., 1995, Collision-related foreland basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 393-424.

Nilsen, T. H., and Sylvester, A. G., 1995, Strike-slip basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 425-457.

Scotese, C. R., Gahagan, L. M., and Larson, R. L., 1988, Plate tectonic reconstructions of the Cretaceous and Cenozoic ocean basins: Tectonophysics, v. 155, p. 27-48.

Smith, G. A., and Landis, C. A., 1995, Intra-arc basins, *in* Busby, C. J., and Ingersoll, R. V., eds., Tectonics of sedimentary basins: Oxford, Blackwell Science, p. 263-298.

Tamaki, K., and Honza, E., 1991, Global tectonics and formation of marginal basins: role of the western Pacific: Episodes, v. 14, p. 224-230.