

- INSTRUCTOR: R.V.Ingersoll (Office 5635)
Office Hours: ~~12~~, W. 13:00-14:00 and by appointment
- LECTURES: T., Th. 10:30-12:00
- LABS: M. 12:00-20:00 (variable return from fieldtrips)
- READINGS: A list of required and suggested readings will be distributed. Required readings should be completed (or, at minimum, skimmed) before corresponding lectures. Readings for fieldtrips also will be required.
- REQUIRED TEXT: Miall, A.D., 1984, Principles of Sedimentary Basin Analysis: Springer-Verlag, New York, 490p.
- EXAMS: There will be one midquarter exam (13 Nov.) and one final exam (8 Dec.).
- PROJECT: There will be one field-based take-home problem near the end of the quarter. This problem will serve as a term paper.
- GRADES: The following point scheme assigns approximate values to required elements of the course:
- | | |
|----------------------------------|------------|
| Lab and Fieldtrip Participation: | 100 |
| Midquarter Exam: | 100 |
| Final Exam: | 150 |
| Take-Home Problem: | 150 |
| TOTAL: | <u>500</u> |
- FIELDTRIPS: Fieldtrips (leaving precisely at 12:00 and returning generally by 20:00) are scheduled for the following days (Mondays):
13 Oct, 20 Oct, 27 Oct, 3 Nov, 17 Nov and 24 Nov.
- PREREQUISITES: ESS 103B and 111, or equivalent courses.

SCHEDULE

<u>Date</u>	<u>Lecture</u>	<u>Laboratory</u>
M 29 Sept		<u>No Lab</u>
T 30 Sept	Introduction and Logistics	
Th 2 Oct	Depositional Systems, Stratigraphy and Facies	
M 6 Oct		<u>Lecture</u> : Correlation, 1.5 hr Unconformities and Time
T 7 Oct	Biostratigraphy and Paleoecology	
Th 9 Oct	Submarine Fan Facies and Turbidites	
M 13 Oct		<u>Fieldtrip</u> : Wheeler Gorge and Simi Hills K-turbidites
T 14 Oct	Cretaceous Paleogeography and Paleotectonics	
Th 16 Oct	Alluvial Fans and Fluvial Systems	
M 20 Oct		<u>Fieldtrip</u> : Soledad Basin
T 21 Oct	Cenozoic Paleogeography and Paleotectonics I	
Th 23 Oct	Oceanic Environments	
M 27 Oct		<u>Fieldtrip</u> : Newport Bay, Dana Point, San Clemente latest return 2hr driving each way.
T 28 Oct	Cenozoic Paleogeography and Paleotectonics II	
Th 30 Oct	Other Paleoenvironments and Facies	
M 3 Nov		<u>Fieldtrip</u> : Santa Monica Mountains
T 4 Nov	Basin Mapping and Geohistory Analysis	
Th 6 Nov	Ridge Basin	
M 10 Nov		<u>No Lab</u>
T 11 Nov	No Class	
Th 13 Nov	<u>EXAM</u>	
M 17 Nov		<u>Fieldtrip</u> : Ridge Basin
T 18 Nov	Paleocurrents and Basin Analysis	
Th 20 Nov	Tectonics of Sedimentary Basins	
M 24 Nov		<u>Fieldtrip</u> : Take-home Problem on Unknown Basin 5pg basin history
T 25 Nov	Rifted Continental Margins	
Th 27 Nov	Thanksgiving (No Class)	
M 1 Dec		<u>Lab</u> : Paleocurrents
T 2 Dec	Arc-Trench Systems	
Th 4 Dec	Collision Suture Belts	
M 8 Dec	<u>FINAL EXAM</u> (11:30-14:30)	

Reading List (*Denotes required reading)

- 29 Sept No Reading
- 30 Sept Dott, R.H., Jr., 1983, 1982 SEPM presidential address: episodic sedimentation - how normal is average? - how rare is rare? does it matter?: Journal of Sedimentary Petrology, v. 53, p. 5-23.
- Sadler, P.M., 1983, Is the present long enough to measure the past?: Nature, v. 302, p. 752.
- Schumm, S.A., 1968, Speculations concerning paleo-hydrologic controls of terrestrial sedimentation: Geological Society of America Bulletin, v. 79, p. 1573-1588.
- Wolman, M.G., and Miller, J.P., 1960, Magnitude and frequency of forces in geomorphic processes: Journal of Geology, v. 68, p. 54-74.
- 2 Oct *Miall, p. 1-6, p. 133-212.
- *Dickinson, W.R., and Graham, S.A., 1975, Sedimentary environments, depositional systems, and stratigraphic cycles in Current concepts of depositional systems with applications for petroleum geology: San Joaquin Geological Society, p. 0.1-0.10.
- *Owen, D.E., 1978, Usage of stratigraphic nomenclature and concepts in the Journal of Sedimentary Petrology or time, place and rocks--how to keep them separate: Journal of Sedimentary Petrology, v. 48, p. 355-358.
- Ager, D.V., 1973, The nature of the stratigraphical record: John Wiley and Sons, New York, p. 27-50.
- Brenchley, P.J., and Williams, B.P.J. (eds.), 1985, Sedimentology: recent developments and applied aspects: Geological Society of London, 342p.
- Holland, C.H., 1978, Stratigraphical classification and all that: Lethaia, v. 11, p. 85-90.
- Lawson, J.D., 1979, Fossils and lithostratigraphy: Lethaia, v. 12, p. 189-191.
- Miall, A.D., 1982, Recent developments in facies models for siliciclastic sediments: Journal of Geological Education, v. 30, p. 222-240.
- Reading, H.G.(ed.), 1978, Sedimentary environments and facies: Elsevier, New York, p. 1-14.
- Van Eysinga, F.W.B., 1970, Stratigraphic terminology and nomenclature: a guide for editors and authors: Earth-Science Reviews, v. 6, p. 267-288.
- Walker, R.G.(ed.), 1984, Facies models, second edition: Geoscience Canada Reprint Series 1, p. 1-13.
- 6 Oct *Miall, p. 73-131.
- *Eicher, D.L., 1976, Geologic time (2nd ed.): Prentice-Hall, Englewood Cliffs, p. 52-67.
- *The North American Commission on Stratigraphic Nomenclature, 1983, North American stratigraphic code: American Association of Petroleum Geologists

Bulletin, v. 67, p. 841-875.

Baldwin, B., Coney, P.J., and Dickinson, W.R., 1974, Dilemma of a Cretaceous time scale and rates of sea floor spreading: *Geology*, v. 2, p. 267-270.

Berry, W.B.N., 1968, Growth of a prehistoric time scale based on organic evolution: W.H. Freeman and Co., San Francisco, 158p.

Cox, A., Dalrymple, G.B., and Doell, R.R., 1967, Reversals of the earth's magnetic field: *Scientific American*, v. 216, p. 44-54.

7 Oct

*Ingle, J.C., Jr., 1975, Paleoecologic indicators and trace fossils, *in* Current concepts of depositional systems with applications for petroleum geology: San Joaquin Geological Society, p. 8.1-8.11.

*Ingle, J.C., Jr., 1975, Paleobathymetric analyses of sedimentary basins, *in* Current concepts of depositional systems with applications for petroleum geology: San Joaquin Geological Society, p. 11.1-11.12.

Basan, P.B. (ed.), 1978, Trace fossil concepts: Society of Economic Paleontologists and Mineralogists Short Course 5, 201p.

Curran, H.A. (ed.), 1985, Biogenic structures: their use in interpreting depositional environments: Society of Economic Paleontologists and Mineralogists Special Publication 35, 347p.

Frey, R.W., and Pemberton, S.G., 1984, Trace fossil facies models, *in* Walker, R.G. (ed.), Facies models, second edition: Geoscience Canada Reprint Series 1, p. 189-207.

Ingersoll, R.V., and Graham, S.A., 1983, Recognition of the shelf-slope break along ancient, tectonically active continental margins: Society of Economic Paleontologists and Mineralogists Special Publication 33, p. 107-117.

Raup, D.M., and Stanley, S.M., 1971, Principles of paleontology: W.H. Freeman and Co., San Francisco, p. 317-351.

9 Oct

*Miall, p. 304-317.

*Walker, R.G., 1984, Turbidites and associated clastic deposits, *in* Walker, R.G. (ed.), Facies models, second edition: Geoscience Canada Reprint Series 1, p. 171-188.

Cook, H.E., Field, M.E., and Gardner, J.V., 1982, Characteristics of sediments on modern and ancient continental slopes, *in* Scholle, P.A., and Spearing, D. (eds.), Sandstone depositional environments: American Association of Petroleum Geologists Memoir 31, p. 329-364.

Howell, D.G., and Normark, W.R., 1982, Sedimentology of submarine fans, *in* Scholle, P.A., and Spearing, D. (eds.), Sandstone depositional environments: American Association of Petroleum Geologists

- Memoir 31, p. 365-404.
- Ingersoll, R.V., 1978, Submarine fan facies of the Upper Cretaceous Great Valley Sequence, northern and central California: *Sedimentary Geology*, v. 21, p. 205-230.
- Kastens, K.A., and Shor, A.N., 1986, Evolution of a channel meander on the Mississippi deep-sea fan: *Marine Geology*, v. 71, p. 165-175.
- Mutti, E., 1977, Distinctive thin-bedded turbidite facies and related depositional environments in the Eocene Hecho Group (south-central Pyrenees, Spain): *Sedimentology*, v. 24, p. 107-131.
- Mutti, E. and Ricci-Lucchi, F., 1978, Turbidites of the northern Apennines: introduction to facies analysis: *International Geology Review*, v. 20, p. 125-166.
- Normark, W.R., 1978, Fan valleys, channels, and depositional lobes on modern submarine fans: characters for recognition of sandy turbidite environments: *American Association of Petroleum Geologists Bulletin*, v. 62, p. 912-931.
- Reineck, H.-E., and Singh, I.B., 1980, *Depositional sedimentary environments* (Second, revised and updated edition): Springer-Verlag, New York, p. 457-501.
- Ricci-Lucchi, F., 1975, Depositional cycles in two turbidite formations of northern Apennines (Italy): *Journal of Sedimentary Petrology*, v. 45, p. 3-43.
- Rupke, N.A., 1978, Deep clastic seas, in Reading, H.G.(ed.), *Sedimentary environments and facies*: Elsevier, New York, p. 372-415.
- Stow, D.A.V., and Lovell, J.P.B., 1979, Contourites: their recognition in modern and ancient sediments: *Earth-Science Reviews*, v. 14, p. 251-291.
- 13 Oct *Walker, R.G., 1975, Upper Cretaceous resedimented conglomerates at Wheeler Gorge, California: description and field guide: *Journal of Sedimentary Petrology*, v. 45, p. 105-112. Also, *Discussion and Reply*, v. 47, p. 926-930.
- Fisher, R. V., and Mattinson, J.M., 1968, Wheeler Gorge turbidite-conglomerate series, California; inverse grading: *Journal of Sedimentary Petrology*, v. 38, p. 1013-1023.
- Link, M.H., 1975, Matilija Sandstone: a transition from deep-water turbidite to shallow-marine deposition in the Eocene of California: *Journal of Sedimentary Petrology*, v. 45, p. 63-78.
- Link, M.H., and Welton, J.E., 1982, Sedimentology and reservoir potential of Matilija Sandstone: an Eocene sand-rich deep-sea fan and shallow-marine complex, California: *American Association of Petroleum Geologists Bulletin*, v. 66, p. 1514-1534.

14 Oct

- Link, M.H., Squires, R.L., and Colburn, I.P. (eds.), 1981, Simi Hills Cretaceous turbidites, southern California: Pacific Section, Society of Economic Paleontologists and Mineralogists, 134p.
- Link, M.H., Squires, R.L., and Colburn, I.P., 1984, Slope and deep-sea fan facies and paleogeography of Upper Cretaceous Chatsworth Formation, Simi Hills, California: American Association of Petroleum Geologists Bulletin, v. 68, p. 850-873.
- Walker, R.G., 1985, Mudstones and thin-bedded turbidites associated with the Upper Cretaceous Wheeler Gorge conglomerates, California: a possible channel-levee complex: Journal of Sedimentary Petrology, v. 55, p. 279-290.
- *Ingersoll, R.V., 1979, Evolution of the Late Cretaceous forearc basin, northern and central California: Geological Society of America Bulletin, v. 90, Part I, p. 813-826.
- Abbott, P.L. (ed.), 1984, Upper Cretaceous depositional systems southern California - northern Baja California: Pacific Section, Society of Economic Paleontologists and Mineralogists, 140p.
- Bottjer, D.J., and Link, M.H., 1984, A synthesis of Late Cretaceous southern California and northern Baja California paleogeography, in Crouch, J.K., and Bachman, S.B. (eds.), Tectonics and sedimentation along the California margin: Pacific Section, Society of Economic Paleontologists and Mineralogists, p. 171-188.
- Bottjer, D.J., Colburn, I.P., and Cooper, J.D. (eds.), 1982, Late Cretaceous depositional environments and paleogeography, Santa Ana Mountains, southern California: Pacific Section, Society of Economic Paleontologists and Mineralogists, 12lp.
- Buck, S.P., and Bottjer, D.J., 1985, Continental slope deposits from a Late Cretaceous tectonically active margin, southern California: Journal of Sedimentary Petrology, v. 55, p. 843-855.
- Carey, S.McD., and Colburn, I.P., 1978, Late Cretaceous sedimentation in the Santa Monica Mountains, California, in Howell, D.G., and McDougall, K.A. (eds.), Mesozoic paleogeography of the western United States: Pacific Section, Society of Economic Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 2, p. 547-558.
- Dickinson, W.R., 1983, Cretaceous sinistral strike slip along Nacimiento fault in coastal California: American Association of Petroleum Geologists Bulletin, v. 67, p. 624-645.
- Howell, D.G., and Vedder, J.G., 1978, Late Cretaceous paleogeography of the Salinian block, California, in Howell, D.G., and McDougall, K.A. (eds.), Mesozoic paleogeography of the western United States: Pacific Section, Society of Economic

- Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 2, p. 523-534.
- Howell, D.G., Crouch, J.K., Greene, H.G., McCulloch, D.S., and Vedder, J.G., 1980, Basin development along the late Mesozoic and Cainozoic California margin: a plate tectonic margin of subduction, oblique subduction and transform tectonics: International Association of Sedimentologists Special Publication 4, p. 43-62.
- Ingersoll, R.V., 1978, Paleogeography and paleotectonics of the late Mesozoic forearc basin of northern and central California, in Howell, D.G., and McDougall, K.A. (eds.), Mesozoic paleogeography of the western United States: Pacific Section, Society of Economic Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 2, p. 471-482.
- Ingersoll, R.V., 1982, Initiation and evolution of the Great Valley forearc basin of northern and central California, U.S.A., in Leggett, J.K. (ed.), Trench-forearc geology: sedimentation and tectonics in modern and ancient active plate margins: Geological Society of London Special Publication 10, p. 459-467.
- MacKinnon, T.C., 1978, The Great Valley sequence near Santa Barbara, California, in Howell, D.G., and McDougall, K.A. (eds.), Mesozoic paleogeography of the western United States: Pacific Section, Society of Economic Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 2, p. 483-491.
- Nilsen, T.H., and Abbott, P.L., 1981, Paleogeography and sedimentology of Upper Cretaceous turbidites, San Diego, California: American Association of Petroleum Geologists Bulletin, v. 65, p. 1256-1284.
- Sundberg, F.A., and Cooper, J.D., 1978, Late Cretaceous depositional environments, northern Santa Ana Mountains, southern California, in Howell, D.G., and McDougall, K.A. (eds.), Mesozoic paleogeography of the western United States: Pacific section, Society of Economic Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 2, p. 535-546.
- 16 Oct *Miall, p. 277-285.
- *Rust, B.R., and Koster, E.H., 1984, Coarse alluvial deposits in Walker, R.G. (ed.), Facies models, second edition: Geoscience Canada Reprint Series 1, p. 53-69.
- *Walker, R.G., and Cant, D.J., 1984, Sandy fluvial systems, in Walker, R.G. (ed.), Facies models, second edition: Geoscience Canada Reprint Series 1, p. 71-89.
- Bull, W.B., 1977, The alluvial-fan environment:

- Progress in Physical Geography, v. 1, p. 222-270.
- Cant, D.J., 1982, Fluvial facies models and their application, in Scholle, P.A., and Spearing, D. (eds.), Sandstone depositional environments: American Association of Petroleum Geologists Memoir 31, p. 115-137.
- Collinson, J.D., 1978, Alluvial sediments, in Reading, H.G.(ed.), Sedimentary environments and facies: Elsevier, New York, p. 15-60.
- Collinson, J.D., and Lewin, J. (eds.), 1983, Modern and ancient fluvial systems: International Association of Sedimentologists Special Publication 6, 575p.
- Fisher, R.V., 1971, Features of coarse-grained, high-concentration fluids and their deposits: Journal of Sedimentary Petrology, v. 41, p. 916-927.
- Miall, A.D.(ed.), 1978, Fluvial sedimentology: Canadian Society of Petroleum Geologists Memoir 5, 859p.
- Miall, A.D.(ed.), 1981, Sedimentation and tectonics in alluvial basins: Geological Association of Canada Special Paper 23, 272p.
- Miall, A.D., 1985, Architectural-element analysis: a new method of facies analysis applied to fluvial deposits: Earth-Science Reviews, v. 22, p. 261-308.
- Nilsen, T.H., 1982, Alluvial fan deposits, in Scholle, P.A., and Spearing, D. (eds.), Sandstone depositional environments: American Association of Petroleum Geologists Memoir 31, p. 49-86.
- Reineck, H.-E., and Singh, I.B., 1980, Depositional sedimentary environments (Second, revised and updated edition): Springer-Verlag, New York, p. 257-314.
- 20 Oct *Hendrix, E.D., and Ingersoll, R.V., 1987, Tectonics and alluvial sedimentation of the Upper Oligocene Vasquez Formation, Soledad basin, southern California: Geological Society of America Bulletin, v. 98, in press.
- *Ehlert, K.W., 1982, Basin analysis of the Miocene Mint Canyon Formation, southern California, in Ingersoll, R.V., and Woodburne, M.O. (eds.), Cenozoic nonmarine deposits of California and Arizona: Pacific Section, Society of Economic Paleontologists and Mineralogists, p. 51-64.
- Bohannon, R.G., 1975, Mid-Tertiary conglomerates and their bearing on Transverse Range tectonics, southern California, in Crowell, J.C. (ed.), The San Andreas fault in southern California, a guide to the San Andreas fault from Mexico to the Carrizo Plain: California Division of Mines and Geology Special Report 118, p. 75-82.
- Muehlberger, W.R., 1958, Geology of northern Soledad basin: American Association of Petroleum Geologists Bulletin, v. 42, p. 1812-1844.

21 Oct

*Miall, p. 408-421.

*Crowell, J.C., 1987, Late Cenozoic basins of onshore southern California: complexity is the hallmark of their tectonic history, in Ingersoll, R.V., and Ernst, W.G. (eds.), Cenozoic basin development of coastal California (Rubey Volume VI): Prentice-Hall, Englewood Cliffs, p. 207-241.

Atwater, T., 1970, Implications of plate tectonics for the Cenozoic tectonic evolution of western North America: Geological Society of America Bulletin, v. 81, p. 3513-3536.

Blake, M.C., and 7 coauthors, 1978, Neogene basin formation in relation to plate tectonic evolution of the San Andreas fault system, California: American Association of Petroleum Geologists Bulletin, v. 62, p. 344-372.

Crowell, J.C., 1974, Sedimentation along the San Andreas fault, California: Society of Economic Paleontologists and Mineralogists Special Publication 19, p. 292-303.

Crowell, J.C., 1974, Origin of late Cenozoic basins in California: Society of Economic Paleontologists and Mineralogists Special Publication 22, p. 190--204.

Nilsen, T.H., 1984, Oligocene tectonics and sedimentation: Sedimentary Geology, v. 38, p. 305-336.

Reading, H.G., 1980, Characteristics and recognition of strike-slip fault systems: International Association of Sedimentologists Special Publication 4, p. 7-26.

Woodburne, M.O., 1975, Cenozoic stratigraphy of the Transverse Ranges and adjacent areas, southern California: Geological Society of America Special Paper 162, 91p.

23 Oct

*Heezen, B.C., and 11 coauthors, 1973, Diachronous deposits, a kinematic interpretation of the post-Jurassic sedimentary sequence on the Pacific plate: Nature, v. 241, p. 25-32.

*Winterer, E.L., 1973, Sedimentary facies and plate tectonics of equatorial Pacific: American Association of Petroleum Geologists Bulletin, v. 57, p. 265-282.

Berger, W.H., 1973, Cenozoic sedimentation in the eastern tropical Pacific: Geological Society of America Bulletin, v. 84, p. 1941-1954.

Cook, H.E., 1975, North American stratigraphic principles as applied to deepsea sediments: American Association of Petroleum Geologists Bulletin, v. 59, p. 817-837.

Frakes, L.A., and Kemp, E.M., 1972, Generation of sedimentary facies on a spreading ridge: Nature, v. 236, p. 114-117.

Jenkyns, H.C., 1978, Pelagic environments, in Reading,

- H.G.(ed.), Sedimentary environments and facies: Elsevier, New York, p. 314-371.
- 27 Oct *Ingle, J.C., Jr., and 6 coauthors, 1973, Miocene sedimentary environment and biofacies, southeastern Los Angeles Bay: Pacific Section, Society of Economic Paleontologists and Mineralogists, p. 8, 18-38, 53-60 and 70-72.
- *Walker, R.G., 1975, Nested submarine-fan channels in the Capistrano Formation, San Clemente, California: Geological Society of America Bulletin, v. 86, p. 915-924.
- Campbell, R.H., and Yerkes, R.F., 1976, Cenozoic evolution of Los Angeles basin: Pacific Section, American Association of Petroleum Geologists Miscellaneous Publication 24, p. 541-558.
- Conrey, B.L., 1967, Early Pliocene sedimentary history of the Los Angeles basin, California: California Division of Mines and Geology Special Report 93, 63p.
- Crouch, J.K., 1979, Neogene tectonic evolution of the California continental borderland and western Transverse Ranges: Geological Society of America Bulletin, v. 90, Part I, p. 338-345.
- Stuart, C.J., 1979, Middle Miocene paleogeography of coastal California and the California borderland -- evidence from schist-bearing sedimentary rocks, in Armentrout, J.M., Cole, M.R., and TerBest, H., Jr. (eds.), Cenozoic paleogeography of the western United States: Pacific Section, Society of Economic Paleontologists and Mineralogists Pacific Coast Paleogeography Symposium 3, p. 29-44.
- Yerkes, R.F., McCulloh, T.H., Schoellhamer, J.E., and Vedder, J.G., 1965, Geology of the Los Angeles basin California--an introduction: United States Geological Survey Professional Paper 420-A, 57p.
- 28 Oct *Dickinson, W.R., and 8 coauthors, 1987, Geohistory analysis of rates of sediment accumulation and subsidence for selected California basins, in Ingersoll, R.V., and Ernst, W.G. (eds.), Cenozoic basin development of coastal California (Rubey Volume VI): Prentice-Hall, Englewood Cliffs, p. 1-23.
- *May, J.A., and Warme, J.E., 1987, Synchronous depositional phases in West Coast basins: eustasy or regional tectonics?, in Ingersoll, R.V., and Ernst, W.G. (eds.), Cenozoic basin development of coastal California (Rubey Volume VI): Prentice-Hall, Englewood Cliffs, p. 24-46.
- Bird, P., and Rosenstock, R.W., 1984, Kinematics of present crust and mantle flow in southern California: Geological Society of America Bulletin, v. 95, p. 946-957.
- Crouch, J.K., and Bachman, S.B. (eds.), 1984, Tectonics and sedimentation along the California margin:

Pacific Section, Society of Economic Paleontologists and Mineralogists, 188p.

Crouch, J.K., Bachman, S.B., and Shay, J.T., 1984, Post-Miocene compressional tectonics along the central California margin, in Crouch, J.K., and Bachman, S.B. (eds.), Tectonics and sedimentation along the California margin: Pacific Section, Society of Economic Paleontologists and Mineralogists, p. 37-54.

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30 Oct

*Miall, p. 285-304.

*Miall, A.D., 1984, Deltas, in Walker, R.G. (ed.), Facies models, second edition: Geoscience Canada Reprint Series 1, p. 105-118.

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Miall, p. 7-71.

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3 Nov

*Mayer, L., 1987, Subsidence analysis of the Los Angeles basin, in Ingersoll, R.V., and Ernst, W.G. (eds.), Cenozoic basin development of coastal California (Rubey Volume VI): Prentice-Hall,

Englewood Cliffs, p. 299-320.

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4 Nov

*Miall, p. 213-275, p. 319-328.

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*Graham, S.A., 1987, Tectonic controls on petroleum occurrence in central California, in Ingersoll, R.V., and Ernst, W.G. (eds.), Cenozoic basin development of coastal California (Rubey Volume VI): Prentice-Hall, Englewood Cliffs, p. 47-63.

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