

CURRICULUM VITAE

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PERSONAL DATA

Date of Birth: December 13, 1951
Place of Birth: Boston, Massachusetts, USA
Languages: Spanish (fair)

EDUCATION

- 1975 BA, Geology
Columbia College, New York
- 1978 MA, MPhil, Geology
Columbia University, New York
- 1983 PhD, Geology
Columbia University, New York
Dissertation: Geologic Studies of the Scotia Arc Region and Agulhas Plateau

FELLOWSHIPS AND AWARDS

- 1974 Awarded USGS summer field assistant position through National Association of Geology Teachers/USGS Cooperative Summer Field Program
- 1975-1981 Faculty Fellowship, Columbia University
- 1986 Co-Recipient of the Jules Braunstein Memorial Award for the best AAPG poster presentation at the 1985 Annual Meeting of the American Association of Petroleum Geologists, New Orleans

PROFESSIONAL EXPERIENCE

- 1978-1981 Columbia University: Graduate Research Assistant
- 1974 and 1975 USGS Wilderness Program: Summer Field Assistant
- 1981-1995 Earth Sciences and Resources Institute, University of South Carolina: 1990-1995, Research Professor; 1984-1990, Senior Research Associate and Research Associate Professor; 1981-1984, Research Associate and Research Assistant Professor.
- 1992-1996 Executive Editor, *Journal of South American Earth Sciences*

PROFESSIONAL EXPERIENCE (continued)

- 1995-2006 Earth Sciences and Resources Institute & Energy & Geoscience Institute, University of Utah, Senior Engineer
- 2006-present Energy & Geoscience Institute, University of Utah, Research Professor
Lead structural, stratigraphic, petrologic, subsurface geologic, and regional tectonic studies on Argentina, Bolivia, Chile, Colombia, Brazil and Middle East (field, laboratory, and literature-based studies); reviews of unconventional oil and gas for North America, Europe and North Africa. Prepare proposals, papers, and technical reports/presentations. Supervise graduate research.
Project sponsors include: Alberta Energy Company, Aminoil International Inc., Amoco Production Co., Anadarko (Kerr McGee), Apache, BHP Ltd., BP Exploration, Centricas Energy, Ceveron Corporation, Chief Operating LLC, Conoco Inc., Devon Energy Coropration and Devon do Brasil, Ecopetrol, EnCana, ENEL, Eni, Ensearch Exploration Company, Hess Corpotation, Hocol, Marathon Oil Petroleum, Mobil, Newfield Exploration, Nexen, Noble Energy, OMV Exploration and Production, Occidental Petroleum, Pearl Exploration and Petroleum Ltd., Petro-Canada, Phillips Petroleum Co., Pioneer Natural Resources, Pogo Producing, Reliance, Repsol YPF, Samson, Shell, Standard Oil Production Co., StatoilHydro Global Exploration, Sun Exploration and Production Co., Tenneco Exploration and Production Co., Texaco, Total, Triton Argentina Inc., Vintage Petroleum, Wintershall AG, the World Bank.
- 09/81-09/85 Various studies of the Neuquen Basin, Argentina, looking at the structure, stratigraphy, tectonic evolution, and petroleum geology of this region. These studies involved approximately one year of field work, interpretation of subsurface data, and supervision of graduate research.
- 10/85-12/85 Literature-based study on the geology and hydrocarbon potential of the Upper and Middle Magdalena Valleys, Colombia.
- 01/86-05/86 A study of the geology and hydrocarbon potential of Carboniferous to Triassic basins, 28-36_S, western Argentina, based chiefly on two months of field work.
- 05/86-06/86 Literature-based study on the Southern Andes overthrust belt.
- 07/86-10/86 Literature-based study on the hydrocarbon potential and play concepts of Argentina.
- 11/86-03/87 Literature-based study on the geology of Chile north of 47° south latitude.
- 04/87-05/88 Field work and literature-based study on the geology and hydrocarbon potential of the Eastern Cordillera of Colombia, involving approximately four months of field work, chiefly supervision of mapping by nine graduate students.
- 02/88-06/90 Literature-based studies of the sedimentary basins and tectonic evolution of northern Chile and adjacent Peru, Bolivia, and Argentina.

PROFESSIONAL EXPERIENCE (continued)

02/90-03/91	Geological supervisor of the World Bank/UNDP Red Sea/Gulf of Aden Regional Hydrocarbon Study Project. Responsible for preparation of reports on the geology of the Egyptian, Sudanese, Ethiopian, and Yemeni portions of the Red Sea and supervision of geologists from Sudan, Somalia, and Yemen.
06/91-03/93	Field-based studies of Subandean Ranges of Bolivia.
4/93-11/94	Lead comprehensive analysis of Eastern Cordillera of Colombia.
1/95-7/95	Director, Study of the Sinú-San Jacinto Basin, based in Bogotá, Colombia.
8/95-11/95	Preparation of GIS front-end for literature on the Gulf of Mexico
1996-2000	Series of projects concerning parts of the various basins
2001-2006	Participant in three large regional geologic exploration studies for multiple sponsors in the Bahamas, Equatorial Margins Basins and Trinidad.
2001-2006	Sole-sponsored projects for engineering business units to determine drilling hazards and metocean conditions prior to setting a well. Location: Persian Gulf, Brazil, Nigeria, Indonesia.
2007-2016	Studies on unconventional shale oil and gas reservoirs (North America, Europe, North Africa, South America) and bacterial gas (Global), and studies on petroleum potential of various other areas (northern Australia, Mongolia, Conventional Gas in South America, and other subjects)

FIELD EXPERIENCE

Argentina	Field mapping and structural studies in west-central Argentina, plus 5 weeks in Buenos Aires consulting subsurface information at Yacimientos Petroliferos Fiscales: 1981-1982, northern Neuquen Basin (3 months); 1982-1983, central Neuquen Basin (3 months); 1984, southern Neuquen Basin (3 months); 1985, southern Neuquen Basin (3 months); 1986, Cuyo Basin and Los Bolsones area (2 months); 1991, Central Andes; 1998, Neuquen Basin (2 weeks); April 2012, Neuquen Basin (2 weeks).
Bolivia	Field studies of the Subandean ranges (1990-1992, 5 months).
Colombia	Field work and field supervision of graduate students in the Eastern Cordillera, 1987 (4 months); 1993-94, field excursions, Eastern Cordillera (2 months); 1995, project director, Sinú-San Jacinto Basin, based in Bogotá, Colombia (6 months).
Middle East	Literature study of the Red Sea and Gulf of Aden (UNDP), based in Cairo for 9 months (1990-1991).

FIELD EXPERIENCE (continued)

Scotia Arc	Field mapping and structural studies: 1975, South Shetland Islands and Antarctic Peninsula (2 months); 1975-1976, South Shetland Islands and southern Chile (5 weeks); 1976, southern Chile (4 weeks); 1977, southern Chile (3 weeks); 1978-1980, southern Chile, thesis-related field work (under direction of Dr. I. W. D. Dalziel), including 2 months as senior scientist of R/V <i>Hero</i> (5 months total).
Trinidad	Field work to determine sedimentologic/tectonic relationships among Cretaceous and Paleogene exposures (2006).
Field Assistant	USGS: 1974, northwestern Montana (9 weeks); 1975, near Aspen, Colorado (8 weeks).
Field Courses	1973, west-central Maine, given by Boston University, summer field course (6 weeks); 1973, Sudbury, Canada, 1975; 1975, Scottish Caledonides (3 weeks); 1977, Barbo, Wisconsin; 1977, Quebec, Canada; 1977, North Cascades; Washington; 1977, California; 1978; Carolines; 1978, Alps, Apennines, and Corsica (6 weeks); 1979, Cyprus; 1979, Grand Canyon (9 days); 1984, Neuquén Basin (1 week); 1989, Spain; 1990, Egypt.

MEMBERSHIPS

American Geophysical Union
European Association of Geoscientists & Engineers
Utah Geological Association

PUBLICATIONS

Abstracts/Presentations

- Allen, R. B., and Forsythe, R. D., 1979. El basamento de Peninsula Staines, XIIa Región, Provincia de Ultima Esperanza, Chile. Abstracts, II Congr. Geol. Chileno (Arica), p. 3.
- Ridley, W. I., Dalziel, I. W. D., Elthon, D., and Allen, R., 1979. The evolution of the Rocas Verdes ophiolite complex, a Mesozoic back-arc basin in southern Chile. Abstracts, Internat. Ophiolite Symp. (Cyprus), p. 66.
- Gernand, J., Allen, R., Schamel, S. and Garcia, E., 1983, Basement faulting in the northern Neuquén Basin, Argentina: Bulletin of the South Carolina Academy of Science, v. 45, p. 95.
- Gernand, J., Allen, R., and Garcia, E., 1983. Structural style of foothills of Andean overthrust belt, northern Neuquén Basin, Argentina. AAPG Bull., v. 67 (3), p. 469.
- Gernand, J., Richardson, A., Garcia, E. and Cowley, G. T., 1984, Foreland structural models for the northern Neuquén Basin, Argentina: Bulletin of the South Carolina Academy of Science, v. 46, p. 94.
- Allen, R. B., Feehan, J., Gernand, J., Nickelsen, B., and Giraut, M., 1985. Andean structures along west flank of Neuquén Basin, Argentina. AAPG Bull., v. 69 (2), p. 234.
- Feehan, J., and Allen, R., 1985. Internally vergent Andean foreland structures, Neuquén Basin, Argentina. GSA Abstr. w/ Progr. v. 17 (7), p. 579.

- Allen, R. B., and Feehan, J. G., 1986. Andean overthrusting, northern Neuquen Basin, Argentina: AAPG Bull., v. 70 (5), p. 559.
- Neher, K., and Allen, R. B., 1986. Reactivation of the Neuquen dorsal during Andean foreland deformation in the southwestern Neuquen Basin, Argentina. GSA Abstr. w/ Progr., v. 18 (6), p. 703.
- Harder, M. W., and Allen, R. B., 1987. The seismic stratigraphy and structural setting of Early Jurassic to mid-Cretaceous sedimentary rocks in the southern Neuquen Basin, Argentina. AAPG Bull., v. 71 (5), p. 564.
- Ressetar, R., Segall, M. P., Laverde, F. E., and Allen, R. B., 1989. Evolving source areas for the Upper Cretaceous-lower Tertiary marine to continental strata of central Colombia. AAPG Bull., v. 73 (3), p. 404.
- Laverde, F. E., Segall, M. P., Allen, R. B., and Ressetar, R., 1989. Recognition of an ancient fluvial system in the Upper Magdalena Valley, Colombia. Programme and Abstracts of the IV International Conference on Fluvial Sedimentology (Barcelona), p. 165.
- Abouzakhm, A. G., Allen, R. B., and Sikander, A. H., 1991. Characteristics of the Bab Al Mandab-Northern Afar area of the Southern Red Sea. AAPG Bull., v. 75 (8), p. 1400-1401.
- Allen, R. B., Abouzakhm, A. G., and Sikander, A. H., 1991. The tectonic evolution of the Red Sea and Gulf of Aden. AAPG Bull., v. 75 (8), p. 1401-1402.
- Allen, R. B., Abouzakhm, A. G., and Sikander, A. H., 1991. Petroleum geology of the Gulf of Aden. AAPG Bull., v. 75 (8), p. 1402.
- Sikander, A. H., Allen, R. B., and Abouzakhm, A. G., 1991. Red Sea and Gulf of Aden petroleum geology and regional geophysical evaluation. AAPG Bull., v. 75 (8), p. 1421.
- Sikander, A. H., Allen, R. B., and Abouzakhm, A. G., 1991. Source/maturation evaluation and hydrocarbon potential of the western Red Sea and southern Gulf of Aden: Canadian Society of Petroleum Geologists, Bulletin, v. 39, no. 2, p. 224.
- Laverde, F., Ressetar, R., and Allen, R. B., 1992. Depositional styles and structural controls of the Tertiary section in the Magdalena Valley, central Colombia. Abstracts of the AAPG Annual Meeting, p. 72-73.
- Allen, R. B., Alfonso, C. A., Ressetar, R., Salazar, A., Ballesteros, I., Cardozo, E., Laverde, F., Ramirez, C., Moreno, J. M., Rubiano, J., and Sarmiento, L., 1993. The Cretaceous stratigraphy of the western Cordillera Oriental, Colombia. AAPG Bull., v. 77 (2), p. 302.
- Ressetar, R., Allen, R. B., Alfonso, C. A., Sarmiento, L., Ramirez, C., and Laverde, F., 1993. Paleogene depositional patterns in the Magdalena Valley and Cordillera Oriental: Implications for deformational processes. AAPG Bull., v. 77 (2), p. 343.
- Segall, M. P., Allen, R. B., Rubiano, J., and Sarmiento, L., 1993. Source terrains and diagenetic imprints of Cretaceous marine rocks of the Cordillera Oriental, Colombia. AAPG Bull., v. 77 (2), p. 347.
- Schamel, S., Richardson, A. and Alfonso P., C. A., 1996, Timing of hydrocarbon maturation and trap formation in the Cordillera Oriental and adjacent petroleum provinces of Colombia: AAPG Bulletin, v. 80, no. 8, p. 1334.
- Wavrek, D. A., Lara, M. E., Laffitte, G. A., Del Vo, S., Collister, J. W., Quick, J. C., Allen, R. B., Jarvie, D. M., and Hollowell, H. E., 1996, Petroleum systems charged by the Vaca Muerta (Tithonian) Formation; Neuquen Basin, Argentina: AAPG Bulletin, v. 80, no. 8, p. 1344.

- Schelling, D. D., Allen, R. B., and Schamel, S., 1997, Structural framework, styles and evolution of the Eastern Cordillera, Colombia: in Geological Society of America, 1997 annual meeting, Salt Lake City, Utah, 29, Geological Society of America (GSA), p. 225.
- Apperson, K. D., Allen, R. B., and Shaw, K., 1998, Factors influencing distribution and quality of rift lacustrine source rocks in South Atlantic rift margin basins of Brazil and West Africa: AAPG Bulletin, v. 82, no. 10, p. 1886.
- Nullo, F. E., Stephens, G. C., Dimieri, L. V., and Allen, R. B., 1998, Back thrust development in the Andean foreland fold and thrust belt, southern Mendoza Province, Argentina: in Geological Society of America, 1998 annual meeting, Toronto, Canada, 30, Geological Society of America (GSA), p. 234.
- Schamel, S., Allen, R. B., Schelling, D., Wavrek, D., Laverde M, F., and Ballesteros T, C. I., 1998, Hydrocarbon potential of the Sinu-San Jacinto region of northern Colombia: in American Association of Petroleum Geologists 1998 annual meeting, Salt Lake City, Utah, American Association of Petroleum Geologists and Society of Economic Paleontologists and Mineralogists.
- Segall, M.P., Allen, R.B., Abrams, M.A., and O. Abou-Ismail, 2001. Seafloor stability of the Argentine continental margin – considerations for offshore hydrocarbon exploration and production. American Association of Petroleum Geologists, Program with Abstracts, p. A182.
- Murphy, R. K., McPherson, S., Segall, M. P., Nemcok, M., Abrams, M. A., Allen, R. B., 2003, Clastic sediment distribution and dispersal in the deepwater Scotian margin: Abstracts with Programs - Geological Society of America, v. 35, no. 3, p. 24.
- Segall, M. P., Murphy, R. K., McPherson, S., Neese, D. G., Nemcok, M., Allen, R. and Chidsey, T. C., Jr., 2003, Modern and antecedent topography; focussing agents for reservoir sands; central and western Scotian Basin: Annual Meeting Expanded Abstracts - American Association of Petroleum Geologists, v. 12, p. 154.
- Abrams, M. A., Nemcok, M., Allen, R., Shaw, K. and Potter, R. W., II, 2005, Identification of key petroleum system risks in Grandview Hills NWT exploration play: Annual Meeting Abstracts - American Association of Petroleum Geologists.

Papers and Other Publications

- de Wit, M. J., Dutch, S., Kligfield, R., Allen, R., and Stern, C., 1977. Deformation, serpentinization and emplacement of a dunite complex, Gibbs Island, South Shetland Islands: Possible fracture zone tectonics. *J. Geol.*, v. 85, p. 745-762.
- Dalziel, I. W. D., Allen, R. B., Elthon, D. L., Forsythe, R. D., Nelson, E. P., Wilson, T. J., and Winslow, M. A., 1979. Scotia Arc tectonics project, 1978-1979. *Antarct. Jour. US*, v. 14, p. 17-18.
- Allen, R. B., 1980. R/V Hero cruise 79-2: The geology and setting of the Sarmiento Complex ophiolite, southern Chile. *Antarct. Jour. US*, v. 15, p. 107-109.
- Forsythe, R. D., and Allen, R., 1980. The basement rocks of Peninsula Staines, Region XII, Provincia de Ultima Esperanza, Chile. *Rev. Geol. de Chile*, no. 7, p. 3-15.
- Allen, R. B., and Tucholke, B. E., 1981. Petrography and implications of continental rocks from the Agulhas Plateau, southwest Indian Ocean. *Geology*, v. 9, p. 463-468.

- Allen, R. B., 1982. Geología de la Cordillera Sarmiento, Andes Patagónicos, entre 51°00' y 52°15' lat. S., Magallanes, Chile. Serv. Nac. Geol. Min., Bol. 38, 46 p.
- Elthon, D., Hanson, R., Allen, R., and Vergara, H., 1984. Unusual ocellar textures in diabases from the Sarmiento ophiolite complex, Chile. Can. J. Earth Sci., v. 21 (3), p. 376-378.
- Allen, R., Garcia, E., and Feehan, J., 1984. Low-angle thrusting in the Neuquen Basin south of Chos Malal, northwest Neuquen Province, Argentina. Actas, IX Congr. Geol. Arg. (S.C. Bariloche), v. 2, p. 137-146.
- Allen, R. B., 1990. Bibliography of South American Geology: Volume I, Argentina. Occas. Pubs. ESRI, New Series, No. 6, 373 p.
- Mitchell, D. J. W., Allen, R. B., Salama, W., and Abouzakm, A., 1992. Tectonostratigraphic framework and hydrocarbon potential of the Red Sea. J. Petrol. Geol., v. 15 (2), p. 187-210.
- Allen, R. B., 1993. Bibliography of South American Geology: Volume II, Bolivia, Brazil, Chile, Colombia. Occas. Pubs. ESRI, New Series, No. 9A, 232 p.
- Nemčok, M., Stuart, C., Rosendahl, B. R., Welker, C., Smith, S., Sheya, C., Sinha, S. T., Choudhuri, M., Allen, R., Reeves, C., Sharma, S. P., Venkatraman, S. and Sinha, N., 2013, Continental break-up mechanism: lessons from intermediate- and fast-extension settings, in Mohriak, W. U., Danforth, A., Post, P. J., Brown, D. E., Tari, G. C., Nemčok, M., and Sinha, S. T., eds., Conjugate Divergent Margins: Geological Society, London, Special Publications, No. 1, v. 369, p. 373-401.
- Nemčok, M., Henk, A., Allen, R., Sikora, P. J. and Stuart, C., 2013, Continental break-up along strike-slip fault zones: observations from the Equatorial Atlantic, in Mohriak, W. U., Danforth, A., Post, P. J., Brown, D. E., Tari, G. C., Nemčok, M., and Sinha, S. T., eds., Conjugate Divergent Margins: Geological Society, London, Special Publications, No. 1, v. 369, p. 537-556.

Thesis and Dissertations (advised)

- Alfonso, C.A., 1989, Stratigraphy and regional structure of the western flank of the Cordillera Oriental, Cimitarra area, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 117 p.
- Alfonso, C.A., 1993, Late Tertiary structure of the Valle del Cauca Basin, Colombian Andes [PhD Dissertation]: University of South Carolina, 50 p., 5 Plates.
- Ballesteros, C.I., 1989, A petrographic study of the Lower Cretaceous Arcabuco, Cumbre, and Rosalblanca Formations in the Sabanagrande-El Peñon-Hoya de Panamá area, Departamento de Santander, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 96 p.
- Cardozo, E.A., 1989, Structural style of the central western flank of the Cordillera Oriental west of Bogotá, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 137 p.
- Feehan, J.G., 1984, Structural style of the central Neuquen Basin, Argentina [MS Thesis]: University of South Carolina, 92 p.
- Gernand, J., 1983, Structural style of the northern Neuquen Basin, Argentina [MS Thesis]: University of South Carolina, 95 p.

- Harder, M.W., 1988, The stratigraphy and structural setting of Early Jurassic to mid-Cretaceous sedimentary rocks in the southern Neuquen Basin, Argentina [MS Thesis]: University of South Carolina, 79 p.
- Laverde, F.E., 1989, Stratigraphy of the Tertiary sequence southwest of Bogotá, Colombia, northeastern Upper Magdalena Valley - western border of the Cordillera Oriental [MS Thesis]: University of South Carolina, Columbia, SC, 66 p.
- Merrill, D.A., 1986, Depositional environments of a Late Jurassic ramp carbonate and associated evaporite, Neuquen Basin, Argentina [MS Thesis]: University of South Carolina, 57 p.
- Moreno, J.M., 1989, Petrography and stratigraphy of the Lower Cretaceous Rosablanca and Cumbre Formations, Utica Sandstone and Murca Sandstone (Murca Formation), Cordillera Oriental, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 111 p.
- Neher, K.E., 1986, The structural geology of the southwestern Neuquen Basin, Argentina [MS Thesis]: University of South Carolina, 87 p.
- Ramírez, C., 1989, Structural style of the Upper Magdalena Valley - Eastern Cordillera border, Cunday-Silvania area, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 72 p.; Appendix-41 p.
- Rubiano, J.L., 1989, Petrography and stratigraphy of the Villeta Group, Cordillera Oriental, Colombia, South America [MS Thesis]: University of South Carolina, Columbia, SC, 96 p.
- Salazar-Jiménez, A., 1992, Depositional and tectonic settings of the Cretaceous sequence, Upper Magdalena Valley, Colombia, S.A. [PhD Dissertation]: University of South Carolina, 200 p., 13 Appendices.
- Sarmiento, L.F., 1989, Stratigraphy of the Cordillera Oriental west of Bogotá, Colombia [MS Thesis]: University of South Carolina, Columbia, SC, 102 p.

Technical Reports

- Allen, R., and Gernand, J., 1982. *Structural Characteristics of Pre-Selected Sites, the North Neuquen Basin, Argentina*. ESRI Technical Report, 16 p.
- Allen, R., Gernand, J., Cavaroc, V., and Garcia, E., 1982. *An Overview of the Geologic History and Structural Setting of the North Neuquen Basin, Argentina*. ESRI Technical Report, 65 p.
- Allen, R., and Feehan, J., 1983. *Structural Style of the Central Neuquen Basin, Argentina*. ESRI Technical Report, 41 p.
- Nickelsen, B., Allen, R., and Giraut, M., 1985. *Stratigraphy and Structure of the Southwestern Neuquen Basin, Argentina*. ESRI Technical Report 85-0001, 41 p.
- Allen, R., Feehan, J., and Nickelsen, B., 1985. *Hydrocarbon Potential of the West Flank of the Neuquen Basin, Argentina*. ESRI Technical Report 85-0002, 51 p.
- Allen, R., and Neher, K., 1985. *Structure of the Southwestern Neuquen Basin, Argentina*. ESRI Technical Report 85-0007, 47 p.

- Nickelsen, B., Merrill, D., and Allen, R., 1985. *Depositional Environment and Hydrocarbon Potential of the Upper Jurassic La Manga and Auquilco Formations, Neuquen Province, Argentina.* ESRI Technical Report 85-0008, 29 p.
- Harder, M., and Allen, R., 1985. *The Structure and Stratigraphy of Late Jurassic to Early Cretaceous Sedimentary Rocks in the Southern Neuquen Basin, Argentina.* ESRI Technical Report 85-0009, 25 p.
- Allen, R., Nickelsen, B., and Feehan, J., 1985. *The Geology of the Neuquen Basin, Argentina.* ESRI Technical Report 85-0010, 115 p.
- Allen, R. B., Schamel, S., and Macellari, C. E., 1985. *The Geology and Hydrocarbon Potential of the Upper and Middle Magdalena Valleys, Colombia.* ESRI Technical Report 85-0018, 110 p.
- Allen, R. B., 1986. *Southern Andes Overthrust Belt.* ESRI Technical Report 86-0009, 140 p.
- Allen, R. B., Nickelsen, B. H., and Feehan, J. G., 1986. *The Geology and Hydrocarbon Potential of Carboniferous to Triassic Basins, 28° to 36° South Latitude, Western Argentina.* ESRI Technical Report 86-0013, 129 p.
- Allen, R. B., Cavaroc, V. V., and Kanes, W. H., 1986. *Outline of Hydrocarbon Potential of Plays in the Sedimentary Basins of Argentina.* ESRI Technical Report 86-0019, 75 p., 100 figs.
- Allen, R. B., 1987. *The Geology of Chile North of the Magallanes Basin, 18° to 47° South Latitude.* ESRI Technical Report 87-0004, 174 p., 64 figs.
- Allen, R. B., Ressetar, R., and Macellari, C., 1988. *Magdalena Study Area: Final Report.* ESRI Technical Report 88-0010, 90 p., 33 plates.
- Allen, R. B., and DeVries, T. J., 1989. *The Geology and Hydrocarbon Potential of Northern Chile and Adjacent Portions of Peru and Bolivia.* ESRI Technical Report 88-0013, 5 vols.
- Fleischmann, K. H., and Allen, R. B., 1989. *Atrato River Valley, Gulf of Uraba, Colombia — Phase I: Photogeology Survey.* ESRI Technical Report 89-0015, 18 p., 3 figs., 1 plate.
- Allen, R. B., 1991. *The Paleozoic to Mesozoic Evolution of the Central Andes.* ESRI Technical Report 91-05-336, 83 p., 30 figs., 7 appendices.
- Allen, R. B., Sadud, A., Daza, H., and Resseter, R., 1992. *Geologic Field Study of the Azero Block, Southern Subandean Ranges, Bolivia.* ESRI Technical Report 92-07-383, 4 vols: 37 p., 5 figs., 23 plates, 6 appendices.
- Alfonso, C. A., Allen, R. B., and Moscoso, A., 1993. *Geologic field study of the Madidi Block, Northern Subandean Ranges, Bolivia.* ESRI Technical Report 92-14-406, 1 vol., 40 p., 11 figs., 10 plates.
- Schamel, S., Allen, R. B., et al., 1994. *Geology and hydrocarbon potential of the Cordillera Oriental, Colombia.* ESRI Technical Report 94-07-418, 4 vols.
- Wavrek, D., Lara, M., Allen, R. B., et al., 1994. *Neuquen Basin, Argentina: An integrated geochemical study.* ESRI Technical Report 94-08-422, 6 vols.
- Allen, R. B., et al., 1995. *Evaluación geológica de la cuenca del Sinú-San Jacinto, Colombia.* ESRI Technical Report 95-07-492, 3 vols.
- Schamel, S., Allen, R., James, R., and Nash, G., 1996. *Geologic framework of the Gulf of Mexico basins: Development of an ArcView™ Database.* ESRI Technical Report 96-5-20937-1, 113 p., CD-ROM.

- Apperson, K. D. and Allen, R. B., 1997, *Petroleum resource potential of South America*. EGI Technical Report 5-20997-97.
- Allen, R. B., Ehrlich, R., Wavrek, D. A., and Mattson, A., 1998, *A field study of the Malargüe area, Neuquén Basin, Mendoza Province, Argentina*. EGI Technical Report 5-20898-3-98.
- Apperson, K. D. and Allen, R. B., 1999, *Petroleum systems of the Orients Basin, Ecuador: A literature review for Alberta Energy Company*. EGI Technical Report 5-20927-4-99.
- Schamel, S., Allen, R., Nash, G. and Beck, Z., 1999, *Hydrocarbon provinces of Colombia: An ArcView GIS synthesis*. EGI Technical Report
- James, R. A., Apperson, K. D., Allen, R. B., Skowron, G., Ekart, D. and Turner, M., 2000, *Deep gas reservoir and play potential, Neuquén Basin, Argentina*. EGI Technical Report 50500535-1-00.
- Segall, M.P., Nemcok, M., Allen, R., Abrams, M.A., and Murphy, R.K., 2001. *Evolution of the Scotian Basin*. Energy & Geoscience Institute Technical Report 50500772-07-31-2001. 118 pp, 6 enclosures, 1 CD.
- Nemcok, M., and Allen, R.B. 2001, *Fault propagation timing in the northern portion of the Gulf of Guinea, Africa*. EGI Technical Report, I00732
- Allen, R. B. 2002, *The Imperial CO₂ Field, Salton Trough, California*. EGI Technical Report
- Abrams, M. A., Nemčok, M., Allen, R. B. and Shaw, K. 2001, *Petroleum Systems Evaluation of Grandview Hills, NWT*. EGI Technical Report No. 50500820-10-01
- Nemcok, M., Shafer, C., Allen, R.B., Segall, M.P., Hermeston, S., Sawyer, R.K., Christensen, C., 2003. *Morocco-Nova Scotia-Georges Bank Margins Basins Project*. Energy & Geoscience Institute Technical Report 50500955.
- Nemcok, M., Segall, M. P., et al., 2004, *Atlantic margins basins project - Phase I: Equatorial margins*. EGI Technical Report 01-0059-5000-50500936.
- Allen, R. B., 2004, *Atlantic margins basins project - Phase I: Equatorial margins. Conversion of GIS - ArcView 3 to ArcGIS 8*. EGI Technical Report 50501153-9-10-2004, 1 DVD.
- Segall, M.P., and Allen, R.B. 2004. *Metocean Dynamics-Offshore Qatar*. Energy & Geoscience Institute Technical Report #50501141-12-30-04. 169 pp., 1 CD.
- Segall, M.P., Stuart, C., and Allen, R. B. 2005, *Bahamas hydrocarbon prospectivity - An EGI peer-assist report*, Energy & Geoscience Institute Technical Report I 00809.
- Segall, M.P., Platon, E., Allen, R., Francu, J., Nemcok, M., Shafer, C., Jarvie, C., Ekart, D., Erickson, J., Abrams, M., 2004. *North Bahamas Continental Margin Evolution*. Energy & Geoscience Institute Technical Report #50501067-7-30-04. 135 pp., 1 CD.
- Allen, R. B., 2005, *The hydrocarbon potential of Central Northern Montana, the foreland north of Augusta*. EGI Technical Report, 1 DVD
- Abrams, M. A. and Allen, R. B., 2005, *Source rock catalog for US onshore basins: Phase I*. EGI Technical Report, 1 DVD
- Abrams, M. A. and Allen, R. B., 2005, *Source rock catalog for US onshore basins: Phase II*. EGI Technical Report, 2 DVD's.
- Segall, M.P. and Allen, R.B., 2005. *Metocean Dynamics Block BM Bar-3 Barreirinhas*. Energy & Geoscience Institute Technical Report 50501273. 106 pp., 1 CD.

- Segall, M.P. and Allen, R.B., 2006. *Effects of Currents on Hydrocarbon Seeps, Makassar Straits*. Energy & Geoscience Institute Technical Report #00892. ?? pp., 1 CD.
- Segall, M.P. and Allen, R.B., 2006. *Seabed Stability and Metocean Dynamics, Nigeria JDZ Block 2*. Energy & Geoscience Institute Technical Report #50501???. ?? pp., 1 CD.
- Segall, M.P. and Allen, R.B., 2006. *Petrographic Paleoenvironmental Evaluation for the Cretaceous and Paleogene Sections, Onshore Trinidad*. Energy & Geoscience Institute Technical Report #50501???. ?? pp., 3 DVD's.
- Abrams, M. A., Allen, R., Manzano-Kareah, K. and Kesler, C., 2007, *Development of a Predictive Resource Model for Shale Gas Systems (SGS). Phase 1 – GIS Catalog of Potential and Existing Shale Gas Plays in U.S. and Canada*. Energy & Geoscience Institute Technical Report #2007-50501491, 2 Vols.
- Allen, R., Deo, M. D., Isaacson, A. E., Keiter, R. B., Kessler, C., Levey, R., Oh, K. S., Smith, P. J., Spinti, J. P.. and Uchitel, K. A., 2007, *A technical, economic, and legal assessment of North American heavy oil, oil sands, and oil shale resources: In response to Energy Policy Act of 2005 Section 369(p)*. University of Utah, Institute for Clean and Secure Energy, Utah Heavy Oil Program, 211 pp.
[<http://www.netl.doe.gov/KMD/cds/disk44/K-Thermal%20Recovery/NT15569%20Final%202007.pdf>;
<http://content.lib.utah.edu/cdm/singleitem/collection/ir-eua/id/2778/rec/1>]
- Segall, M.P., Allen, R.B. and Nash, G., 2008, *Eastern Black Sea paleodrainage*. Energy & Geoscience Institute Technical Report I 00888.
- McLennan, J., Allen, R., and Gani R., 2008, *West Rozel evaluation*, Energy & Geoscience Institute Technical Report I 00884
- Manzano-Kareah, K., Allen, R., Kesler, C. and Abrams, M., 2008, *Predictive Resource Model for Bacterial Gas Systems Phase 1 – ArcGIS Catalog of Known Worldwide Accumulations of Bacterial Gas*. Energy & Geoscience Institute Technical Report #2008-50501574, 3 Vols.
- Segall, M.P., Birgenheier, L., McLennan, J., Allen, R.B., and Kesler, C., 2009, *Resource and technology audit of gas shales occurring outside of North America - Europe and North Africa*. Energy & Geoscience Institute Technical Report I 00963
- Birgenheier, L., Allen, J., Allen, R., and Kesler C., 2010, *Oil shale of Jordan and Morocco*. Energy & Geoscience Institute Technical Report I 00966
- Allen, J., Allen, R., Kesler, C., and Levey, R., 2011, *Assessment of potential North African and European shale gas plays*. Energy & Geoscience Institute Technical Report I 00982.
- Kesler, C. and Allen, R., 2011, *Hydrocarbon in Mongolia*. Energy & Geoscience Institute Technical Report I 01002
- Smith, A., and Allen, R., 2012-2013, *South America Conventional Gas*. Energy & Geoscience Institute Technical Report I 01061.
- Osborne, S., Allen, R., Anderson, J., Dahdah, N., Hillier, R. A., Kanungo, S., Keach, B., Kotulové, J., McLennan, J., Nash, G., Richards-McClong, Bryony, 2014, *South America shale gas and shale oil plays phase 1: regional geological characteristics and play modeling*. Energy & Geoscience Institute Technical Report I 01005.