

REFERENCES

- Aguirre, L., Hervé, F., and Godoy, E. (1972): Distribution of metamorphic facies in Chile: - an outline. *Krystalinikum*, 9, 7-19.
- Alarcón, B. (1995): Geología del area comprendida entre los 41°45'-42°05' latitud sur y 72°25'-72°50' longitud oeste, Provincias Llanquihue y Palena, X Región. Thesis, Univ. Chile, Santiago.
- Allmendinger, R. W., and Gubbels, T. (1996): Pure and simple shear plateau uplift, Altiplano-Puna, Argentina and Bolivia. *Tectonophysics*, 259, 1-13.
- Anderson, E. M. (1951): The Dynamics of Faulting and Dyke Formation with Applications to Britain. *Oliver and Boyd, White Plains, N. Y.*, 2nd ed., 206 pp.
- Angelier, J. (1979): Determination of the mean principal directions of stresses for a given fault population. *Tectonophysics*, 56, T17-T26.
- Angelier, J., and Guguel, J. (1979): Sur une méthode simple de détermination des axes principaux des contraintes pour une population de failles. *C. R. Acad. Sci. Paris*, 288, 307-310.
- Angermann, D., Klotz, J., and Reigber, C. (1999): Space-geodetic estimation of the Nazca-South America Euler vector. *Earth Planet. Sci. Lett.*, 171, 329-334.
- Annaheim, H. (1946): Studien zur Geomorphogenese der Südalpen etc. *Geogr. Helvet.*, 1, 65-149.
- Apperson, K. D. (1991): Stress fields of the overriding plate at convergent margins and beneath active volcanic arcs. *Science*, 254, 670-678.
- Arancibia, G., Cembrano, J., and Lavenu, A. (1999): Transpresión dextral y partición de la deformation en la Zona de Falla Liquiñe-Ofqui, Aysén, Chile (44-45°S). *Rev. Geol. Chile*, 26 (1), 3-22.
- Arlegui-Crespo, L. E., and Simon-Gomez, J. L. (1998): Reliability of paleostress analysis from fault striations in near multidirectional extension stress fields. Example from the Ebro Basin, Spain. *J. Struc. Geol.*, 20 (7), 827-840.
- Asch, G., Schurr, B., Lüth, S., Belmonte, A., Bohm, M., Bruhn, C., Giese, P., Rietbrock, A., and Wigger, P. (2001): Structure and rheology of the upper plate from seismological investigations. *SFB 267 - Report 1999-2001*, 177-209.
- Assumpcao (1992): The Regional Intraplate Stress Field in South America. *J. Geophys. Res.*, 97 (B8), 11889-11903.
- Bangs, N. L., and Cande, S. C. (1997): Episodic development of a convergent margin inferred from structures and processes along the southern Chile margin. *Tectonics*, 16 (3), 489-503.
- Barazangi, M., and Isacks, B. L. (1976): Spatial distribution of earthquakes and subduction of the Nazca plate beneath South America. *Geology*, 4, 686-692.
- Barrientos, S., and Acevedo, A. P. (1992): Seismological aspects of the 1988-1989 Lonquimay (Chile) volcanic eruption. *J. Volcan. Geoth. Res.*, 53, 73-87.
- Barthelme, N. (1995): Geoinformatik - Modelle, Strukturen, Funktionen. Springer Verlag, Berlin.
- Batson, R. M., Edwards, K., and Eliason, E. M. (1975): Computer generated shaded relief images. *US Geol. Sur. Res.*, 3, 401-408.
- Beck, M. E. (1988): Analysis of Late Jurassic-Recent paleomagnetic data for active plate margins of South America. *J. S. Am. Earth Sci.*, 1, 39-52.
- Beck, M. E. (1991): Coastwise transport reconsidered: lateral displacements in oblique subduction zones, and tectonic consequences. *Phys. Earth Planets Int.*, 68, 1-8.
- Beck, M. E., Rojas, C., and Cembrano, J. (1993): On the nature of buttressing in margin-parallel strike-fault systems. *Geology*, 21, 755-758.
- Beck, S. L., Zandt, G., Maers, S. C., Wallace, T. C., Silver, P. G., and Drake, L. (1996): Crustal scale variations in the central Andes. *Geology*, 24, 407-410.
- Beck, M. E. (1998): On the mechanism of crustal block rotations in the central Andes. *Tectonophysics*, 299, 75-92.
- Beck, S., Barrientos, S., Kausel, E., and Reyes, M. (1998): Source characteristics of historic earthquakes along the central Chile subduction zone. *J. South Am. Earth Sci.*, 11 (2), 115-129.
- Beck, M. E., Burmester, R. F., and Steele, B. C. (1998): Paleomagnetism of probably remagnetized late Mesozoic volcanic rocks near Lago Verde, Aysén, southern Chile. *Rev. Geol. Chile*, 25 (2), 153-163.
- Beck, M., Burmester, R., Cembrano, J., Drake, R., Garcia, A., Hervé, F., and Muniyaga, F. (2000): Paleomagnetism of the North Patagonian batholith, southern Chile. An exercise in shape analysis. *Tectonophysics*, 326, 185-202.
- Berthé, D., Choukroune, P., and Jegouzo, P. (1979): Orthogniess, mylonite and non-coaxial deformation of granites: the example of the South Armorican shear zone. *J. Struc. Geol.*, 1, 31-42.
- Blisniuk, P. M., Hacker, B. R., Glodny, J., Ratschbacher, L., Bi, S., Wu, Z., McWilliams, M. O., and Calvert, A. (2001): Normal faulting in central Tibet since at least 13.5 Myr ago. *Nature*, 412, 628-632.
- Boettcher, M. (1999): Tektonik der Halbinsel Arauco und angrenzender Forearc-Bereiche (südliches Zentral-Chile). *Mitt. Geol.-Pal. Inst. Univ. Hamburg*, 83, 1-58.
- Bohm, M., Lüth, S., Echter, H., Asch, G., Bataille, K., Bruhn, C., Rietbrock, A., and Wigger, P. (2002): The Southern Andes between 36° and 40° latitude: seismicity and average seismic velocities. *Tectonophysics*, 356, 275-289.

- Brown, M., and Solar, G. S. (1998 a): Shear-zone systems and melts: feedback relations and self-organization in orogenic belts. *J. Struc. Geol.*, 20 (2/3), 221-227.
- Brown, M., and Solar, G. S. (1998 b): Granite ascent and emplacement during contractional deformation in convergent orogens. *J. Struc. Geol.*, 20 (9/10), 1365-1393.
- Brown, M., and Solar, G. S. (1999): The mechanism of ascent and emplacement of granite magma during transpression: a syntectonic granite paradigm. *Tectonophysics*, 312, 1-33.
- Brozovic, N., Burbank, D. W., and Meigs, A. J. (1997): Climatic limits on landscape development in the northwestern Himalaya. *Science*, 276, 571-574.
- Burbank, D. W., and Anderson, R. S. (2001): *Tectonic Geomorphology*. Blackwell Science, Berlin, 274 pp.
- Burrough, P. A. (1986): *Principles of Geographical Information Systems for Land Resources Assessment*. Oxford University Press, New York, 193 pp.
- Burrough, P. A., and McDonnel, R. A. (1998): *Principles of Geographic Information Systems*. Oxford University Press, New York, 299 pp.
- Butler, R. F., Hervé, F., Munizaga, F., Beck, M. E. J., Burmester, R. F., and Oviedo, E. S. (1991): Paleomagnetism of the Patagonian Plateau basalts, southern Chile and Argentina. *J. Geophys. Res.*, 96 (B4), 6023-6034.
- Byerlee, J. D. (1978): Friction of rocks. *Pure Appl. Geophys.*, 116, 615-626.
- Caminos, R., Llambias, E. J., Rapela, C. W., and Parica, C. A. (1988): Late Paleozoic-Early Triassic magmatic activity of Argentina and the significance of new Rb-Sr ages from northern Patagonia. *J. S. Am. Earth Sci.*, 1 (2), 137-145.
- Campos, A. C., Moreno, H. R., Muñoz, J. B., Antinao, J. R., Clayton, J., and Martin, M. (1998): Hoja Area de Futrono-Lago Ranco - Región de los Lagos (1:100.000). Serv. Nac. Geo. Min., Santiago.
- Cande, S. C., and Leslie, R. B. (1986): Late Cenozoic tectonics of the Southern Chile Trench. *J. Geophys. Res.*, 91 (B1), 471-496.
- Carr, J. R. (1995): *Numerical analysis for geological sciences*. Prentice-Hall, New Jersey, 585 pp.
- Casas, A. M., Cortés, A. L., Maestro, A., Soriano, M. A., Riaguas, A., and Bernal, J. (2000): LINDENS: A program for lineament length and density analysis. *Comp. Geosc.*, 26, 1011-1022.
- Cathles, L. M. (1975): *The viscosity of the Earth's mantle*. Princeton, Princeton Univ. Press, New Jersey.
- Cembrano, J., Beck, M. E., Burmester, R. F., Rojas, C., Garcia, A., and Hervé, F. (1992): Paleomagnetism of Lower Cretaceous rocks from east of the Liquiñe-Ofqui fault zone, southern Chile: evidence of small in-situ clockwise rotations. *Earth Planet. Sci. Lett.*, 113, 539-551.
- Cembrano, J., and Hervé, F. (1993): The Liquiñe Ofqui Fault Zone: a major Cenozoic strike slip duplex in the Southern Andes. *Abstracts - ISAG II*, 175-178.
- Cembrano, J., Hervé, F., and Lavenu, A. (1996): The Liquiñe Ofqui fault zone: a long-lived intra-arc fault system in southern Chile. *Tectonophysics*, 259, 55-66.
- Cembrano, J. (1998): *Kinematics and timing of intra-arc deformation at the southern Andes plate boundary zone*. PhD thesis, Univ. Dalhousie, Halifax, 231 pp.
- Cembrano, J., Schermer, E., Lavenu, A., and Sanhueza, A. (2000): Contrasting nature of deformation along an intra-arc shear zone, Liquiñe-Ofqui fault zone, southern Chilean Andes. *Tectonophysics*, 319, 129-149.
- Cembrano, J., Lavenu, A., Reynolds, P., Arancibia, G., López, G., and Sanhueza, A. (2002): Late Cenozoic transpressional ductile deformation north of the Nazca-South America-Antarctica triple junction. *Tectonophysics*, 354, 289-314.
- Charrier, R., Baeza, O., Elgueta, S., Flynn, J. J., Gans, P., Kay, S. M., Muñoz, N., Wyss, A. R., and Zurita, E. (2002): Evidence for Cenozoic extensional basin development and tectonic inversion south of the flat-slab segment, southern Central Andes, Chile (33°-36°S.L.). *J. S. Am. Earth Sci.*, 15, 117-139.
- Chinn, D. S., and Isacks, B. L. (1983): Accurate source depths and focal mechanisms of shallow earthquakes in western South America and in the New Hebrides island arc. *Tectonics*, 2 (6), 529-563.
- Cifuentes, I. L. (1989): The 1960 Chilean Earthquakes. *J. Geophys. Res.*, 94 (B1), 665-680.
- Cingolani, C., Dalla Salda, L., Hervé, F., Munizaga, F., Pankhurst, R. J., Prada, M. A., and Rapela, C. W. (1991): The magmatic evolution of northern Patagonia; New impressions of pre-Andean and Andean tectonics. In: R. S. Harmon and C. W. Rapela (eds.), *Andean Magmatism and its Tectonic Setting*, 29-43.
- Clauer, N., O'Neil, J. R., and Bonnot-Courtois, C. (1982): The effect of natural weathering on the chemical and isotopic compositions of biotites. *Geochim. Cosmochim. Acta*, 46, 1755-1762.
- Cliff, R. A. (1985): Isotopic dating in metamorphic belts. *J. Geol. Soc. London.*, 142, 97-110.
- Cobbold, P. R., Diraison, M., and Rossello, E. A. (1999): Bitumen veins and Eocene transpression, Neuquén Basin, Argentina. *Tectonophysics*, 314, 423-442.

REFERENCES

- Coblentz, D. D., and Richardson, R. M. (1995): Statistical trends in the intraplate stress fields. *J. Geophys. Res.*, 100 (B10), 20245-20255.
- Coblentz, D. D., and Richardson, R. M. (1996): Analysis of the South American intraplate stress field. *J. Geophys. Res.*, 101 (B4), 8643-8657.
- Coulomb, C. A. (1773): Sur une application des règles de Maximis a quelques problems de statique relatifs a l'Architecture. *Ac. Roy. Sci. Mem. Math. Phys. Div. Sav.*, 7, 343-382.
- Coutand, I., Diraison, M., Cobbold, P. R., Gapais, D., Rossello, E. A., and Miller, M. (1999): Structure and kinematics of a foothills transect, Lago Viedma, southern Andes (49°30'S). *J. South Am. Earth Sci.*, 12, 1-15.
- Dalziel, I. W. D. (1981): Back-arc extension in the Southern Andes; a review and critical reappraisal. In: F. J. Vine and A. G. Smith (eds.), *Extensional Tectonics Associated With Convergent Plate Boundaries*. Roy. Soc. London, 319-335.
- Deffontaines, B. (1990): Developpement d'une methodologie morphoneotectonique et morphostructurale; analyse des surfaces enveloppes, du reseau hydrographique et des modeles numerique de terrain; application au Nord-Est de la France. Thesis, Univ. Paris, France: 260 pp.
- Deffontaines, B., and Chorowicz, J. (1991): Principles of drainage basin analysis from multisource data; aplcation to the structural analysis of the Zaire Basin. *Tectonophysics*, 194 (3), 237-263.
- Deffontaines, B., Chotin, P., Ait, B. L., and Rozanov, M. (1992): Investigation of active faults in Morocco using morphometric methods and drainage pattern analysis. *Geol. Rund.*, 81 (1), 199-210.
- Deffontaines, B. L., Angelier, J.-C., Carvalho, J., and Rudant, J. P. (1994): New geomorphic data on the active Taiwan orogen: A multisource approach. *J. Geophys. Res.*, 99, 20243-20266.
- Deffontaines, B., Lacombe, O., Angelier, J., Chu, H.-T., Mouthereau, F., Lee, C.-T., Deramond, J., Lee, J.-F., Yu, M.-S., and Liew, P.-M. (1997): Quaternary transfer faulting in the Taiwan foothills; evidence from a multisource approach. *Tectonophysics*, 274 (1-3), 61-82.
- Delaney, T., Pollard, D. D., Ziony, J. I., and McKee, E. H. (1986): Field relations between dikes and joints: Emplacement processes and paleostress analysis. *J. Geophys. Res.*, 91, 4920-4938.
- DeMets, C., Gordon, R. G., Argus, D. F., and Stein, S. (1994): Effect of recent revisions to the geomagnetic reversal time scale on estimates of current plate motions. *Geophys. Res. Lett.*, 21 (20), 2191-2194.
- Deroin, J.-P., and Deffontaines, B. (1995): Morphostructural analysis for linking streamflow, lithology, and structure: comparison with remote sensing data on the Cévennes (French Massif Central). *Z. Geomorph.*, 39 (1), 97-116.
- Dewey, J. F., and Lamb, S. H. (1992): Active tectonics of the Andes. *Tectonophysics*, 205, 79-95.
- Diemer, J. A., and Forsythe, R. (2000): Evidence for Cretaceous to Recent motion at the southern terminus of the Liquiñe-Ofqui Fault, Southern Chile. *Abstracts - GSA 96th*, 32 (6), 10.
- Diraison, M., Cobbold, P., Rossello, E., and Amos, A. (1998): Neogene dextral transpression due to oblique convergence across the Andes of northwestern Patagonia, Argentina. *J. S. Am. Earth Sci.*, 11, 519-532.
- Díaz, J. L. N. (1999): Sediment subduction and accretion at the Chilean convergent margin between 35° and 40°S. Doctoral thesis, Univ. Kiel.
- Dodson, M. H. (1973): Closure temperature in cooling geochronological and petrological systems. *Contrib. Mineral. Petrol.*, 40, 259-274.
- Druguet, E., and Hutton, D. H. W. (1998): Syntectonic anatexis and magmatism in a mid-crustal transpressional shear zone: an example from the Hercynian rocks of the eastern Pyrenees. *J. Struc. Geol.*, 20 (7), 905-916.
- Dury, G. H. (1951): Quantitative measurement of available relief and depth of dissection. *Geol. Mag.*, 88, 339-343.
- Dutton, B. J. (1997): Finite strains in transpression zones with no boundary slip. *J. Struc. Geol.*, 19 (9), 1189-1200.
- Endlicher, W., and Mäkel, R. (1985): Studien zur Fluß- und Talentwicklung im südlichen Zentralchile. *Z. Geomorph. N. F.*, 56, 89-108.
- Engelder, T. (1993): Stress Regimes in the Lithosphere. *Princeton Univ. Press, Princeton, N. J.*, 457 pp.
- England, P., and Molnar, P. (1990): Surface uplift, uplift of rocks, and exhumation of rocks. *Geology*, 18 (12), 1173-1177.
- Eppinger, K. J., and Rosenfeld, U. (1996): Western margin and provenance of sediments of the Neuquén Basin (Argentina) in the Late Jurassic and Early Cretaceous. *Tectonophysics*, 259 (1-3), 229-244.
- Etheridge, M. A. (1983): Differential stress magnitudes during regional deformation and metamorphism: Upper bound imposed by tensile fracturing. *Geology*, 11, 205-226.
- Ferraris, P. (1981): Hoja Los Angeles-Angol. Serv. Nac. Geol. Min., Santiago.
- Fitch, T. J. (1972): Plate convergence, transcurrent faults, and internal deformation adjacent to southeast Asia and the western Pacific. *J. Geophys. Res.*, 77 (23), 4432-4460.

- Folguera, A., and Ramos, V. A. (2000): Control estructural de volcán Copahue (38°S-71°O); implicancias tectónicas par el arco volcánico cuaternario (36-39°S). *Rev. Asoc. Geol. Argent.*, 55 (3), 229-244.
- Folguera, A., Ramos, V. A., and Melnick, D. (2002): Partición de la deformación en la zona del arco volcánico de los Andes neuquinos (36-39°S) en los últimos 30 millones de años. *Rev. Geol. Chile*, 29 (2), 227-240.
- Forsythe, R. (1982): The late Paleozoic to early Mesozoic evolution of Southern South America: a plate tectonic interpretation. *J. Geol. Soc. London*, 139, 671-682.
- Forsythe, R. D., and Nelson, E. P. (1985): Geological manifestations of ridge collision: Evidence from the Golfo de Penas-Taitao basin, southern Chile. *Tectonics*, 4, 477-495.
- Forsythe, R. D., Olsson, R. K., Hohnson, C., and Nelson, E. P. (1985): Stratigraphic and micropaleontologic observations from the Golfo de Penas-Taitao basin, Southern Chile. *Rev. Geol. Chile*, 25-26, 3-12.
- Franzese, J. R., and Spaletti, L. A. (2001): Late Triassic-early Jurassic continental extension in southwestern Gondwana: tectonic segmentation and pre-break-up rifting. *J. S. Am. Earth Sci.*, 14, 257-270.
- Franzese, J., Spaletti, L., Pérez, I. G., and Macdonald, D. (2003): Tectonic and paleoenvironmental evolution of Mesozoic sedimentary basins along the Andean foothills of Argentina (32°-54°S). *J. South Am. Earth Sci.*, 16, 81-90.
- Franzke, H. J., Ahrendt, H., Kurz, S., and Wemmer, K. (1996): K-Ar Datierungen von Illiten aus Kataklastiten der Floßbergstörung im südöstlichen Thüringer Wald und ihre geologische Interpretation. *Z. Geol. Wiss.*, 24 (3/4), 441-456.
- Freeman, S. R., Inger, S., H. B. R. W., and A. C. R. (1997): Dating deformation using Rb-Sr in white mica: Greenschist facies deformation ages from the Entrelor shear zone, Italian Alps. *Tectonics*, 16, 57-76.
- Freeman, S. R., Butler, R. W. H., Cliff, R. A., and Rex, D. C. (1998): Direct dating of mylonite evolution: a multi-disciplinary geochronological study from the Moine thrust zone, NW Scotland. *J. Geol. Soc. London*, 155 (5), 745-758.
- Gapais, D., Cobbold, P. R., Bourgeois, O., Delphine, P., and de Urreiztieta, M. (2000): Tectonic significance of fault-slip data. *J. Struct. Geol.*, 22, 881-888.
- García, A., Beck, M. E., Burmester, R. F., Hervé, F., and Munizaga, F. (1988): Paleomagnetic reconnaissance of the region de los Lagos southern Chile and its tectonic implications. *Rev. Geol. Chile*, 15, 13-30.
- George, M. T., and Bartlett, J. M. (1996): Rejuvenation of Rb-Sr mica ages during shearing on the northwestern margin of the Nanga Parbat Haramosh massif. *Tectonophysics*, 260, 167-185.
- Getty, S. R., and Gromet, L. P. (1992): Geochronological constraints on ductile deformation, crustal extension and doming about a basement cover boundary, New England Appalachians. *Am. J. Sci.*, 292, 359-397.
- Glodny, J., Lohrmann, J., Seifert, W., Gräfe, K., Ehtler, H., and Figueroa, O. (2002): Geochronological constraints on material cycling velocities, structural evolution, and exhumation of a Paleo-accretionary wedge: the Bahia Mansa Complex, South Central Chile. *Abstracts - ISAG IV*, 259-262.
- Godoy, E., Yañez, G., and Vera, E. (1999): Inversion of an Oligocene volcano-tectonic basin and uplifting of its superimposed Miocene magmatic arc in the Chilean Central Andes: first seismic and gravity evidences. *Tectonophysics*, 306, 217-236.
- Gonzales, E. (1989): Hydrocarbon resources in the coastal zone of Chile. In: G. E. Ericksen, M. T. Canas Pinochet, and J. A. Reinemund (eds.), *Geology of the Andes and its relation to hydrocarbon and mineral resources*. Circ. Pac. Coun. En. Min. Res. Earth Sci. Ser. Houston, 383-404.
- González-Bonorino, F. (1971): Metamorphism of the crystalline basement of Central Chile. *J. Petrol.*, 12 (1), 149-175.
- Gorring, M. L., Kay, S. M., Zeitler, P. K., Ramos, V. A., Rubiolo, D., Fernandez, M. I., and Panza, J. L. (1997): Neogene Patagonian plateau lavas: Continental magmas associated with ridge collision at the Chile triple junction. *Tectonics*, 16, 1-17.
- Griffith, A. A. (1921): The phenomena of rupture and flow of solids. *Phil. Trans. Roy. Soc. London*, A221, 163-289.
- Gutscher, M. A., Spakman, W., Bijwaard, H., and Angdahl, E. R. (2000): Geodynamics of flat subduction: Seismicity and tomographic constraints from the Andean margin. *Tectonics*, 19 (5), 814-833.
- Hack, J. T. (1973): Stream-profile analysis and stream-gradient index. *J. Res. Geol. Survey*, 1 (4), 421-429.
- Hallet, B., Hunter, L., and Bogen, J. (1996): Rates of erosion and sediment evacuation by glaciers: a review of field data and their implications. In: A. Solheim, F. Riss, A. Elverhoi, J. I. Faleide, L. N. Jensen, and S. Cloetingh (eds.), *Impact of glaciations on basin evolution; data and models from Norwegian margin and adjacent areas*. 213-235.

- Handin, J., Hager, R. V., Friedman, M., and Feather, J. M. (1963): Experimental deformation of sedimentary rocks under confining pressure: pore pressure tests. *Am. Ass. Petrol. Geol. Bull.*, 47, 718-755.
- Handy, M. R., and Streit, J. E. (1999): Mechanics and mechanisms of magmatic underplating: inferences from mafic veins in deep crustal mylonites. *Earth Planet. Sci. Lett.*, 165, 271-286.
- Handy, M. R., Mulch, A., Rosenau, M., and Rosenberg, C. L. (2001): The role of fault zones and melts as agents of weakening, hardening and differentiation of the continental crust: a synthesis. *Geol. Soc. London Spec. Publ.*, 186, 305-332.
- Haq, B. U., Hardenbol, J., and Vail, P. R. (1988): Mesozoic and Cenozoic chronostratigraphy and eustatic cycles. In C. K. Wilgus, B. S. Hastings, C. G. S. G. Kendall, H. Posamentier, C. A. Ross, and J. van Wagoner (eds.), *Sea-level changes: An Integrated Approach*. Soc. Econ. Paleont. Mineral. Spec. Publ., 71-108.
- Hauser, A. (1991): Hans Steffen, precursor del concepto Falla Liquiñe-Ofqui. *Rev. Geol. Chile*, 18 (2), 177-179.
- Hervé, M. (1976): Estudio geológico de la falla Liquiñe-Reloncaví en la área de Liquiñe: antecedentes de un movimiento transcurrente (Provincia de Valdivia). *Actas - Congr. Geol. Chil. I*, 1 (B), 39-56.
- Hervé, F. (1977): Petrology of the crystalline basement of the Nahuelbuta Mountains, southcentral Chile. In: T. Ishikawa and L. Aguirre (eds.), *Comparative Studies on the Geology of the Circum-Pacific Orogenic Belt in Japan and Chile*. Japan Soc. Prom. Sci., 1-51.
- Hervé, F., Muniyaga, F., Parada, M.-A., Brook, M., Pankhurst, R. J., Snelling, N. J., and Drake, R. (1988): Granitoids of the Coast Range of Central Chile: Geochronology and geologic setting. *J. South Am. Earth Sci.*, 1, 185-194.
- Hervé, F. (1994): The Southern Andes between 39° and 44°S Latitude: The Geological Signature of a Transpressive Tectonic Regime Related to a Magmatic Arc. In K. J. Reutter, E. Scheuber, and P. J. Wigger (eds.), *Tectonics of the Southern Central Andes*. Springer Verlag, Berlin, 243-248.
- Hervé, F., Pankhurst, R. J., Drake, R., and Beck, M. E. (1995): Pillow metabasalts in a mid-Tertiary extensional basin adjacent to the Liquiñe-Ofqui fault zone: the Isla Magdalena area, Aysén, Chile. *J. S. Am. Earth Sci.*, 8 (1), 33-46.
- Hervé, F., Araya, E., Pankhurst, R. J., and Ramírez, E. (1996): Age and Al-in-hornblende geobarometry in the North Patagonian Batholith, Aysén, Chile. *Abstracts - ISAG III*, 579-582.
- Hervé, F., Demant, A., Ramos, V. A., Pankhurst, R. J., and Suréz, M. (2000): The Southern Andes. In: U. G. Coordani, E. J. Milani, A. Thomaz Filho, and D. A. Campos (eds.), *Tectonic Evolution of South America*. 605-634.
- Hetzel, R., and Glodny, J. (2002): A crustal-scale, orogen-parallel strike-slip fault in the middle Urals: Age, magnitude of displacement, and geodynamic significance. *Geol. Rundschau*, 91 (2), 231-245.
- Heusser, C. J. (1990): Chilotan piedmont glacier in the Southern Andes during the last glacial maximum. *Rev. Geol. Chile*, 17 (1), 3-18.
- Hindle, D., Kley, J., Klosko, E., Stein, S., Dixon, T., and Norabuena, E. (2002): Consistency of geologic and geodetic displacements during Andean orogenesis. *Geophys. Res. Lett.*, 29 (8), 29-1-29-4.
- Hippert, J. (1999): Are S-C structures, duplexes and conjugate shear zones different manifestations of the same scale-invariant phenomenon? *J. Struc. Geol.*, 21, 975-984.
- Hobbs, W. H. (1904): Lineaments of the Atlantic border region. *Geol. Soc. Am. Bull.*, 15, 483-506.
- Hoeppener, R. (1955): Tektonik im Schiefergebirge. *Geol. Rund.*, 44, 26-58.
- Hogan, J. P., and Dunne, W. M. (2001): Calculation of shortening due to outcrop-scale deformation and its relation to regional deformation pattern. *J. Struc. Geol.*, 23, 1507-1529.
- Homberg, C., Hu, J. C., Angelier, J., Bergerat, F., and Lacombe, O. (1996): Characterization of stress perturbations near major fault zones: insights from 2-D distinct-element numerical modelling and field studies (Jura mountains). *J. Struc. Geol.*, 19 (5), 703-718.
- Howard, A. D. (1967): Drainage analysis in geologic interpretation: a summation. *Am. Ass. Petr. Geol. Bull.*, 51 (11), 2246-2259.
- Howard, A. D. (1973): Modified contour-generalization procedure as applied to the Santa Lucia Range, California. *Geol. Soc. Am. Bull.*, 84, 3415-3428.
- Hueck, K. (1966): Die Wälder Südamerikas. Gustav Fischer Verlag, Stuttgart, 422 pp.
- Hulton, N., Sugden, D., Payne, A., and Clapperton, C. (1994): Glacier modeling and the climate of Patagonia during the Last Glacial Maximum. *Quatern. Res.*, 42, 1-19.
- Illies, H. (1967): Randpazifische Tektonik und Vulkanismus im südlichen Chile. *Geol. Rundschau*, 57, 81-101.
- Isacks, B. L. (1988): Uplift of the central Andean plateau and bending of the Bolivian orocline. *J. Geophys. Res.*, 93, 3211-3231.
- Itoh, Y., Tsutsumi, H., Yamamoto, H., and Arato, H. (2002): Active right-lateral strike-slip fault zone along the southern margin of the Japan Sea. *Tectonophysics*, 351, 301-314.

- Jarrard, R. D. (1986): Relations amongst subduction parameters. *Rev. Geophys.*, 24, 217-284.
- Jähne, B. (1993): Digital image processing. Springer Verlag, Berlin, 383 pp.
- Jiang, D., and Willimas, P. F. (1999): A fundamental problem with the kinematic interpretation of geologic structures. *J. Struc. Geol.*, 21, 933-937.
- Jolly, R. J. H., and Sanderson, D. J. (1997): A Mohr circle construction for the opening of a pre-existing fracture. *J. Struc. Geol.*, 19 (6), 887-892.
- Jordan, T. E., Burns, W. M., Veiga, R., Pángaro, F., Copeland, P., Kelley, S., and Mpodozis, C. (2001): Extension and basin formation in the southern Andes caused by increased convergence rate: A mid-Cenozoic trigger for the Andes. *Tectonics*, 20 (3), 308-324.
- Kaizuka, S., Matsuda, T., Nogami, M., and Yonekura, N. (1973): Quaternary tectonics and recent seismic crustal movements in the Arauco peninsula and its environs, Central Chile. *Geophys. Rep. Tokyo Metropol. Univ.*, 8, 49 pp.
- Kemnitz, H., Kramer, W., and Rosenau, M. (in press): Jurassic to Tertiary tectonic, volcanic, and sedimentary evolution of the Southern Andean intra-arc zone, Chile (38-39°S), *NJB Geol. Pal.*
- Khazaradze, G., and Klotz, J. (2003): Short- and long-term effects of GPS-measured crustal deformation rates along the south central Andes. *J. Geophys. Res.*, 108 (B6), 5-1 - 5-15.
- Kirby, E., and Whipple, K. (2001): Quantifying differential rock-uplift rates via stream profile analysis. *Geology*, 29 (5), 415-418.
- Kley, J., and Monaldi, C. R. (1998): Tectonic shortening and crustal thickness in the Central Andes: How good is the correlation? *Geology*, 26 (8), 723-726.
- Kley, J. (1999): Geologic and geometric constraints on a kinematic model of the Bolivian orocline. *J. South Am. Earth Sci.*, 12, 221-235.
- Klosko, E. R., Stein, S., Hindle, D., Kley, J., Norabuena, E., Dixon, T., and Liu, M. (2002): Comparison of GPS, seismological, and geological observations of Andean mountain building. In: S. Stein and J. T. Freymüller (eds.), *Plate Boundary Zones*, 123-133.
- Klotz, J., Khazaradze, G., Angermann, D., Reigber, C., Perdomo, R., and Cifuentes, O. (2001): Earthquake cycle dominates contemporary crustal deformation in Central and Southern Andes. *Earth Planet. Sci. Lett.*, 193, 437-446.
- Kohlstedt, D. L., Evans, B., and Mackwell, S. J. (1995): Strength of the lithosphere: Constraints imposed by laboratory experiments. *J. Geophys. Res.*, 100 (B9), 17587-17602.
- Koike, K., Nagano, S., and Kawaba, K. (1998): Construction and analysis of interpreted fracture planes through combination of satellite-image derived lineaments and digital elevation model. *Comp. Geosc.*, 24 (6), 573-583.
- Lamb, S., and Davis, P. (2003): Cenozoic climate change as a possible cause of the rise of the Andes. *Nature*, 425, 792-797.
- Lara, L. P., and Moreno, H. R. (1998): Hoja Area de Liqueñe-Neltume, Región de los Lagos (1:100.000). Serv. Nac. Geol. Min., Santiago.
- Lara, L., Rodríguez, C., Moreno, H., and Pérez de Arce, C. (2001): Geocronología K-Ar geoquímica del volcanismo plioceno superior-pleistoceno de los Andes del sur (39-42°S). *Rev. Geol. Chile*, 28 (1), 67-90.
- Lavenu, A., and Cembrano, J. (1999): Compressional- and transpressional-stress pattern for Pliocene and Quaternary brittle deformation in fore arc and intra-arc zones (Andes of Central and Southern Chile). *J. Struc. Geol.*, 21, 1669-1691.
- Levi, D. B., Aguilar, M. A., and Fuenzalida, P. R. (1966): Reconocimiento geológico en las provincias de Llaquihue y Chiloe. *Bol. - Inst. Inv. Geol. Chile*, 19.
- Linares, E., Cagnoni, M. C., DoCampo, M., and Ostera, H. A. (1988): Geochronology of metamorphic and eruptive rocks of southeastern Neuquén and northwestern Río Negro Provinces, Argentine Republic. *J. S. Am. Earth Sci.*, 1 (1), 53-61.
- Linares, E., Ostera, H. A., and Mas, L. H. (1999): Potassium-Argon chronology of the Copahue-Caviahue Effusive Complex, Neuquén Province. *Rev. As. Geol. Arg.*, 54 (3), 240-247.
- Lliboutry, L. (1956): Nieves e Glaciares de Chile.
- Lliboutry, L. (1999): Glaciars of Chile and Argentina. In: R. S. Williams and J. G. Ferrigno (eds.), *Satellite Image Atlas of Glaciars of the World*. South America US Geol. Sur. Prof. Paper.
- Lohrmann, J., Kukowski, N., Adam, J., and Oncken, O. (2000): Identification of controlling parameters of the accretionary southern Chilean margin (38°S) with analogue models. *Profil*, 18, 50.
- Louis, H. (1957): Der Reliefssockel als Gestaltungsmerkmal des Abtragungsreliefs. *Stuttg. Geogr. Studien*, 69, 65-70.
- Lowell, T. V., Heusser, C. J., Andersen, B. G., Moreno, P. I., Hauser, A., Heusser, L. E., Schlüchter, C., Marchant, D. R., and Denton, G. H. (1995): Interhemispheric Correlation of Late Pleistocene Glacial Events. *Science*, 269, 1541-1549.
- López-Escobar, L., Cembrano, J., and Moreno, H. (1995): Geochemistry and tectonics of the Chilean Southern Andes Quaternary volcanism (37°-46°S). *Rev. Geol. Chile*, 22 (2), 219-234.

- Lucassen, F., Franz, G., Thirlwall, M. F., and Mezger, K. (1999): Crustal recycling of metamorphic basement: Late Paleozoic granites of the Chilean Coast Range and Precordillera at ca. 22°S. *J. Petrol.*, 40, 1527-1551.
- Lucassen, F., Trumbull, R., Franz, G., Creixell, C., Vasquez, P., Romer, R. L., and Figueroa, O. (subm.): Distinguishing crustal recycling and juvenile additions at active continental margins: the Paleozoic to recent compositional evolution of the Chilean Pacific margin (36-41°S).
- Lüth, S., Wigger, P., and the ISSA Research Group (2003): A crustal model along 39°S from a seismic refraction profile – ISSA 2000. *Rev. Geol. Chile*, 30, 1 83-101.
- Ludwig, K. R. (1999): Isoplot/Ex Version 2.06. Berkely Geochronology Center.
- Malumíán, N., and Ramos, V. A. (1984): Magmatic intervals, transgression-regression cycles and oceanic events in the Cretaceous and Tertiary of southern South America. *Earth Planet. Sci. Lett.*, 67, 228-237.
- Marrett, R., and Peacock, D. C. P. (1999): Strain and stress. *J. Struc. Geol.*, 21, 1057-1063.
- Marrett, R., and Strecker, M. R. (2000): Response of intracontinental deformation in the central Andes to late Cenozoic reorganization of South American Plate motions. *Tectonics*, 19 (3), 452-467.
- Martin, M. W., Kato, T. T., Rodriguez, C., Godoy, E., Duhart, P., and McDonough, M. (1999): Evolution of the late Paleozoic accretionary complex and overlying forearc-magmatic arc, south central Chile (38°-41°S): Constraints for the tectonic setting along the southwestern margin of Gondwana. *Tectonics*, 18(4), 582-605.
- Martínez, R. (1961): Estudio micropaleontológico-muestras formaciones Manzano y Ayacara. Univ. Chile, Santiago, informe inédito, 1-37.
- Massonne, H.-J., and Schreyer, W. (1987): Phengite geobarometry based on the limiting assemblage with K-feldspar, phlogopite, and quartz. *Contrib. Mineral. Petrol.*, 96, 212-224.
- Mayer, L. (1999): Application of digital elevation models to macroscale tectonic geomorphology. In: M. A. Summerfield (ed.), *Geomorphology and Global Tectonics*. John Wiley and Sons, New York, 15-27.
- McCaffrey, R. (1992): Oblique plate convergence, slip vectors, and forearc deformation. *J. Geophys. Res.*, 978905-978915.
- McElfresh, S. B. Z., Harbart, W., Ku, C.-Y., and Lin, J.-S. (2002): Stress modeling of tectonic blocks at Cape Kamchatka, Russia using principal stress proxies from high resolution SAR: new evidence for the Komandorskiy Block. *Tectonophysics*, 354, 239-256.
- McQuarrie, N. (2002): Initial plate geometry, shortening variations, and evolution of the Bolivian orocline. *Geology*, 30 (10), 867-870.
- McQuarrie, N. (2002): The kinematic history of the central Andean fold-thrust belt, Bolivia: Implications for building a high plateau. *Geol. Soc. Am. Bull.*, 114 (8), 950-963.
- Means, W. D. (1999): Reversed structures and bounce structures: are they recognizable? Are they real? *J. Struc. Geol.*, 21, 917-921.
- Melnick, D. (2000): Geometría y estructuras de la parte Norte de la zona de Falla Liquiñe-Ofqui (38°S): interpretación de sensores remotos. *Actas - Congr. Geol. Chil. IX*, 796-799.
- Mercer, J. H. (1976): Glacial history of southernmost South America. *Quat. Res.*, 6, 125-166.
- Mercer, J. H., and Sutter, J. F. (1982): Late Miocene-earliest Pliocene glaciation in southern Argentina: Implications for global ice-sheet history. *Paleogeogr., Paleoclimat., Paleoecol.*, 38, 185-206.
- Meyer, B., Tapponier, P., Bourjot, L., Metivier, F., Gaudemer, Y., Peltzer, G., Guo, S., and Chen, Z. (1998): Crustal thickening in Gansu-Qinghai, lithospheric mantle subduction, and oblique, strike-slip controlled growth of the Tibet plateau. *Geophys. J. Int.*, 135, 1-47.
- Mohr, O. (1900): Welche Umstände bedingen die Elastizitätsgrenze und den Bruch eines Materials? *Z. V. Deutsch. Ing.*, 44, 1524-1530; 1572-1577.
- Mohr, O. (1914): *Abhandlungen aus dem Gebiet der technischen Mathematik*. Ernst und Sohn Verlag, Berlin.
- Montgomery, D. R., Balco, G., and Willett, S. D. (2001): Climate, tectonics, and the morphology of the Andes. *Geology*, 29 (7), 579-582.
- Mordojovich, C. (1974): Geology of a part of the Pacific margin of Chile. In: C. A. Burke and C. L. Drake (eds.), *The Geology of Continental Margins*. Springer Verlag, New York, 591-598.
- Mordojovich, C. (1981): Sedimentary basins of Chilean Pacific offshore. In: M. T. Halbouty (ed.), *Energy Resources of the Pacific Region*. Am. Ass. Petrol. Geol. Stud. Geol., 63-82.
- Mpodozis, C., and Ramos, V. (1989): The Andes of Chile and Argentina. In: G.E. Ericksen, M. T. Canas Pinochet, and J. A. Reinemund (eds.), *Geology of the Andes and its relation to hydrocarbon and mineral resources*. Circ. Pac. Coun. En. Min. Res. Earth Sci. Ser., Houston, 59-90.
- Mulch, A., Rosenau, M., Dörr, W., and Handy, M. R. (2002): The age and structure of dikes along the tectonic contact of the Ivrea-Verbano and Strona-Ceneri Zones (southern Alps, Northern Italy, Switzerland). *Schweiz. Mineral. Petrogr. Mitt.*, 85, 55-76.
- Munizaga, F., Hervé, F., Drake, R., Pankhurst, R., Brook, M., Snelling, N. (1988): Geochronology of the lake region of south central Chile (39°-42°S): Preliminary results. *J. S. Am. Earth Sci.*, 1, 309-316.

- Muñoz, J., and Stern, C. R. (1988): The Quaternary volcanic belt of the southern continental margin of South America: Transverse structural and petrochemical variations across the segment between 38°S and 39°S. *J. South Am. Earth Sci.*, 1 (2), 147-161.
- Muñoz, J. (1997): Sistemas estructurales Cenozoicos en la Región de Los Lagos, Chile: Interpretación de lineamientos en imagen radarsat. *Actas - Congr. Geol. Chil. VIII*, 1, 190-194.
- Muñoz, J., and Araneda, M. (2000): Extensión cortical en el Oligoceno Mioceno entre los 39° y 42° Sur, Región de Los Lagos, Chile: Antecedentes geológicos y geofísicos. *Actas - Congr. Geol. Chil. IX*, 2, 609-612.
- Murdie, R. E., Prior, D. J., Styles, P., Flint, S. S., Pearce, R. G., and Agar, S. M. (1993): Seismic responses to ridge-transform subduction: Chile triple junction. *Geology*, 21 (12), 1095-1098.
- Nakamura, K. (1977): Volcanoes as possible indicators of tectonic stress orientation - principle and proposal. *J. Volc. Geoth. Res.*, 2, 1-16.
- Nelson, A. R., and Manley, W. F. (1992): Holocene coseismic and aseismic uplift of Isla Mocha, South-Central Chile. *Quat. Int.*, 15/16, 61-76.
- Nelson, E., Forsythe, R., and Arit, I. (1994): Ridge collision tectonics in terrane development. *J. S. Am. Earth Sci.*, 7, 271-278.
- Neumann, W., and Huster, E. (1974): The half-life of ⁸⁷Rb measured as difference between the isotopes ⁸⁷Rb and ⁸⁵Rb. *Z. Phys.*, 270, 121-127.
- Niemeyer, H., and Muñoz, J. (1983): Hoja Laguna de La Laja - Región del Biobío. Serv. Nac. Geo. Min., Santiago.
- Ostera, H. A., Linares, E., Haller, M. J., Cagnoni, M. C., and López de Luchi, M. (2001): A widespread Devonian metamorphic episode in Northern Patagonia, Argentina. *Abstracts - Simp. Geol. Isot. Chile III*, 600-603.
- O'Leary, D. W., Friedman, J. D., and Pohn, H. A. (1976): Lineament, linear, lineation: Some proposed new standards for old terms. *Geol. Soc. Am. Bull.*, 87, 1463-1469.
- Pankhurst, R., Hervé, F., Rojas, L., and Cembrano, J. (1992): Magmatism and tectonics in continental Chiloé, Chile (42° and 42°30'S). *Tectonophysics*, 205, 283-294.
- Pankhurst, R. J., Weaver, S. D., Hervé, F., and Larrondo, P. (1999): Mesozoic-Cenozoic evolution of the North Patagonian Batholith in Aysén, southern Chile. *J. Geol. Soc. London*, 156 (4), 673-694.
- Pankhurst, R. J., Riley, T. R., Fanning, C. M., and Kelley, S. P. (2000): Episodic silicic volcanism in Patagonia and the Antarctic Peninsula: Chronology of magmatism associated with the break-up of Gondwana. *J. Petrol.*, 41 (5), 605-625.
- Pannekoek, A. J. (1967): Generalized contour maps, summkt level maps, and streamline surface maps as geomorphological tools. *Z. Geomorph.*, 11, 169-182.
- Parada, M. A., Palacios, C., and Lahsen, A. (1997): Jurassic extensional tectono-magmatism and associated mineralization of the El Faldeo polymetallic district, Chilean Patagonia: geochemical and isotopic evidence of crustal contribution. *Min. Dep.*, 32, 547-554.
- Parada, M. A., Lahsen, A., and Palacios, C. (2000): The Miocene plutonic event of the Patagonian Batholith at 44°30'S; thermochronological and geobarometric evidence for melting of rapidly exhumed lower crust. *Transactions Royal Soc. Edinburgh: Earth Sciences*, 91, 169-179.
- Pardo-Casas, F., and Molnar, P. (1987): Relative motion of the Nazca (Farallon) and South American plates since Late Cretaceous times. *Tectonics*, 6, 233-248.
- Pawley, M. J., Collins, W. J., and Van Kranendonk, M. J. (2002): Origin of fine-scale sheeted granites by incremental injection of magma into active shear zones: examples from the Pilibara Craton, NW Australia. *Lithos*, 61, 127-139.
- Peacock, D. C. P., Anderson, M. W., Morris, A., and Randall, D. E. (1998): Evidence for the importance of 'small' faults on block rotation. *Tectonophysics*, 299, 1-13.
- Petit, J. P. (1987): Criteria for movement on fault surfaces. *J. Struc. Geol.*, 9 (5/6), 597-608.
- Pike, R. J., and Wilson, S. E. (1971): Elevation-relief ratio, hypsometric integral, and geomorphic area-altitude analysis. *Geol. Soc. Am. Bull.*, 82, 1079-1084.
- Plafker, G., and Savage, J. C. (1970): Mechanism of the Chilean Earthquakes of May 21 and 22, 1980. *Geol. Soc. Am. Bull.*, 81, 1001-1030.
- Pollard, D. D., Saltzer, S. D., and Rubin, A. M. (1993): Stress inversion methods: are they based on faulty assumptions? *J. Struc. Geol.*, 15 (8), 1045-1054.
- Potent, S., and Reuther, C.-D. (2001): Neogene Deformationsprozesse im aktiven magmatischen Bogen Südzentralchiles zwischen 37° und 39°S. *Mitt. Geol.-Paläont. Inst. Univ. Hamburg*, 85, 22 pp.
- Potent, S. (2003): Kinematik und Dynamik neogener Deformationsprozesse des südzentralchilenischen Subduktionssystem, nördlichste Patagonische Anden (37°-40°S). Doctoral thesis, Univ. Hamburg, 169 pp.
- Pouchou, J. L., and Pichoir, F. (1984): Un nouveau modele de calcul pour la microanalyse quantitative par spectrometrie de rayons: X Application a l'analyse d'échantillons homogenes. *Rech. Aerosp.*, 3, 13-38.
- Pratt, W. K. (1991): Digital Image Processing. John Wiley and Sons, New York.

- Pubellier, M., Deffontaines, B., Quebral, R., and Rangin, C. (1994): Drainage network analysis and tectonics of Mindanao, southern Philippines. *Geomorphology*, 9 (4), 325-342.
- Rabassa, J., and Clapperton, C. M. (1990): Quaternary glaciations of the Southern Andes. *Quaternary Science Reviews*, 9, 153-174.
- Radic, J. P., Rojas, L., Carpinelli, A., and Zurita, E. (2002): Evolución tectónica de la cuenca terciaria de Cura-Mallín, region cordillerana Chileno Argentina. *Actas - Cong. Geol. Argent. XV*.
- Ramos, V., and Kay, S. M. (1992): Southern Patagonian plateau basalts and deformation: Backarc testimony of ridge collisions. *Tectonophysics*, 205, 261-282.
- Ramos, V. A., Cegarra, M., and Cristallini, E. (1996): Cenozoic tectonics of the High Andes of wet-central Argentina (30-36°S latitude). *Tectonophysics*, 259, 185-200.
- Ramsay, J. G., and Graham, R. H. (1970): Strain variation in shear belts. *Can. J. Earth Sci.*, 7, 786-813.
- Ramsey, J. G., and Huber, M. I. (1983): The techniques of modern structural geology. Vol. 1: Strain Analysis. Academic Press Inc., London, 391 pp.
- Rapela, C. W., and Kay, S. M. (1988): Late Paleozoic to recent magmatic evolution of northern Patagonia. *Episodes*, 11 (3), 175-182.
- Rapela, C. W., and Pankhurst, R. J. (1992): The granites of northern Patagonia and the Gastre Fault System in relation to the break-up of Gondwana. In: B. C. Storey, T. Alabaster, and R. J. Pankhurst (eds.), *Magmatism and Causes of Continental Break-up*. Geol. Soc. London Spec. Publ., 209-220.
- Reichert, C., BVlock, M., Gaedicke, C., Flüh, E. R., Kramczyk, C. M., Ladage, S., Schreckenberger, B., Wiedicke-Hombach, M., Wigger, P., and Group, S. R. (2003): Subduction processes off Chile (SPOC) - CHilean subduction variability imaged by geophysical offshore data. *Terra Nostra*, 2, 63.
- Reinecker, J., Heidbach, O., and Mueller, B. (2003): The 2003 release of the World Stress Map. (available online at www.world-stress-map.org).
- Reiter, F., and Acs, P. (2000): TectonicsFP - a computer program for structural geology.
- Richardson, R. M., and Coblenz, D. D. (1994): Stress modeling in the Andes: Constraints on the South American intraplate stress magnitudes. *J. Geophys. Res.*, 99 (B11), 22015-22025.
- Riller, U., and Oncken, O. (2003): Growth of the Central Andean plateau by tectonic segmentation is controlled by the gradient in crustal shortening. *J. Geol.*, 111, 367-384.
- Robin, P.-Y. F., and Cruden, A. R. (1994): Strain and vorticity patterns in ideally ductile transpression zones. *J. Struc. Geol.*, 16 (4), 447-466.
- Rojas, C., Beck, M. E., Burmester, R. F., Cembrano, J., and Hervé, F. (1994): Paleomagnetism of the Mid-Tertiary Ayacara Formation, southern Chile: counterclockwise rotation in a dextral shear zone. *J. S. Am. Earth Sci.*, 7, 45-56.
- Rolando, A. P., Hartmann, L. A., Santos, J. O. S., Fernandez, R. R., Etcheverry, R. O., Schalamuk, I. A., and McNaughton, N. J. (2002): SHRIMP zircon U-Pb evidence for extended Mesozoic magmatism in the Patagonian Batholith and assimilation of Archean crustal components. *J. S. Am. Earth Sci.*, 15, 267-283.
- Rosenberg, C. L., and Handy, M. R. (2000): Syntectonic melt pathways during simple shearing of an anatectic rock analog (norcamphor-benzamide). *J. Struc. Geol.*, 105, 3135-3149.
- Rosenberg, C. L., and Handy, M. R. (2001): Mechanisms and orientation of melt segregation paths during pure shearing of a partially molten rock analog (norcamphor-benzamide). *J. Struc. Geol.*, 23, 1917-1932.
- Ruegg, J. C., Campos, J., Madariaga, R., Kausel, E., Chabaliér, J.B.D., Armijo, R., Dimitrov, D., Georgiev, I., and Barrientos, S. (2002): Interseismic strain accumulation in south central Chile from GPS measurements, 1996-1999. *Geophys. Res. Lett.*, 29(11), 12-1 - 12-4.
- Saint Blanquat, M. d., Tickoff, B., Teyssier, C., and Vigneresse, J. L. (1998): Transpressional kinematics and magmatic arcs. In R. E. Holdsworth and J. F. Dewey (eds.), *Continental Transpressional and Transtensional Tectonics*. Geol. Soc. London Spec. Pub., 327-340.
- Sanderson, D. J., and Marchini, W. R. D. (1984): Transpression. *J. Struc. Geol.*, 6 (5), 449-458.
- Sanhueza, A., and Cembrano, J. (2000): Magma ascent mechanisms and arc construction in the Southern Volcanic Zone of the Andes. *Actas - Congr. Geol. Chil. IX*, 2, 688-692.
- Schmitz, M. (1994): A balanced model of the southern Central Andes. *Tectonics*, 13 (2), 484-492.
- Scholl, D. W., Christensen, M. N., von Huene, R., and Arlow, M. S. (1970): Peru-Chile Trench and Sea-Floor Spreading. *Geol. Soc. Am. Bull.*, 81, 21951-21961.
- Schowengerdt, R. A. (1983): Techniques for image processing and classification in remote sensing. Academic Press, New York, 249 pp.
- Schumm, S. A. (1956): Evolution of drainage systems and slopes in badlands at Perth Amboy, New Jersey. *Geol. Soc. Am. Bull.*, 67, 597-646.
- Secor, D. T. (1965): Role of fluid pressure in jointing. *Am. J. Sci.*, 263, 633-646.

- Seifert, W., Rosenau, M. R., and Echtler, H. (in press): The evolution of the South Central Chile magmatic arcs: Crystallization depths of granitoids estimated by hornblende geothermobarometry - implications for mass transfer processes along the active continental margin. *NJB Geol. Pal.*
- Sheffels, M. S. (1990): Lower bound on the amount of crustal shortening in the central Bolivian Andes. *Geology*, 18 (9), 812-815.
- Sibson, R. H. (1985): A note on fault reactivation. *J. Struc. Geol.*, 7 (6), 751-754.
- Sieh, K., and Natawidjaja, D. (2000): Neotectonics of the Sumatran fault, Indonesia. *J. Geophys. Res.*, 105 (B12), 28,295-28,326.
- Somoza, R. (1998): Updated Nazca (Farallon)-South America relative motion during the last 40 My: implications for mountain building in the central Andean regime. *J. S. Am. Earth Sci.*, 11, 211-215.
- Spang, J. H. (1972): Numerical method for dynamic analysis of calcite twin lamellae. *Geol. Soc. Am. Bull.*, 83 (1), 467-472.
- Sperner, B. (1996): Computer programs for the kinematic analysis of brittle deformation structures and the Tertiary tectonic evolution of the Western Carpathians (Slovakia). Doctoral Thesis, Univ. Tübingen, 120 pp.
- Steffen, H. (1944): Patagonia Occidental. Las cordilleras patagónicas y sus regiones circundantes. *Ed. Univ. Chile*, 1, 333 pp.
- Stern, C. R. (1989): Pliocene to present migration of the volcanic front, Andean Southern Volcanic Zone. *Rev. Geol. Chile*, 16 (2), 145-162.
- Stern, C. R., and Skewes, M. A. (1995): Miocene to present magmatic evolution at the northern end of the Andean Southern Volcanic Zone, Central Chile. *Rev. Geol. Chile*, 22 (2), 261-272.
- Stern, C. R., Muñoz, J., Troncoso, R., Duhart, P., Crignola, P., and Farmer, G. L. (2000): Tectonic setting of the mid-Tertiary coastal magmatic belt in South Central Chile: An extensional event related to late Oligocene changes in plate convergence rate and subduction geometry. *Actas - Congr. Geol. Chil. IX*, 2, 693-696.
- Strahler, A. N. (1952): Hypsometric (area-altitude) analysis of erosional topography. *Geol. Soc. Am. Bull.*, 63, 1117-1142.
- Suárez, M. D., and Emparan, C. (1997): Hoja Curacautin - Regiones de la Araucanía y del Biobío. Serv. Nac. Geo. Min., Santiago.
- Tanaka, H., Nobuo, U., and Tetsumaru, I. (1995): Timing of the cataclastic deformation along the Akaishi Tectonic Line, central Japan. *Contrib. Mineral. Petrol.*, 120, 150-158.
- Tebbens, S. F., Cande, S. C., Kovacs, L., Parra, J. C., LaBrecque, J. L., and Vergara, H. (1997): The Chile ridge: A tectonic framework. *J. Geophys. Res.*, 102 (B6), 12,035-12,059.
- Thiele, R., Hervé, F., Parada, M. A., and Godoy, E. (1986): La megafalla Liquiñe-Ofqui en el fiordo Reloncaví (41°30'12"S), Chile. *Comunicaciones Dep. Geol. Univ. de Chile*, Santiago, 37, 31-44.
- Thomson, S. N. (2001): Mesozoic-Cenozoic denudation history of the Patagonian Andes (southern Chile) and its correlation to different subduction processes. *Tectonics*, 20 (5), 693-711.
- Thomson, S. N. (2002): Late Cenozoic geomorphic and tectonic evolution of the Patagonian Andes between latitudes 42° and 46°S: An appraisal based on fission-track results from the transpressional intra-arc Liquiñe-Ofqui fault zone. *Geol. Soc. Am. Bull.*, 114 (9), 1159-1173.
- Thornburg, T. M., Kulm, L. D., and Hussong, D. M. (1990): Submarine fan development in the southern Chile Trench: A dynamic interplay of tectonics and sedimentation. *Geol. Soc. Am. Bull.*, 102, 1658-1680.
- Tikoff, B., and Peterson, K. (1998): Physical experiments of transpressional folding. *J. Struc. Geol.*, 20 (&), 661-672.
- Tikoff, B., and Wojtal, S. F. (1999): Displacement control of geologic structures. *J. Struc. Geol.*, 21, 959-967.
- Tobisch, O. T., and Cruden, A. R. (1995): Fracture-controlled magma conduits in an obliquely convergent continental magmatic arc. *Geology*, 23 (10), 941-944.
- Tsuboi, C. (1983): Gravity. George Allen and Unwin, London, 254 pp.
- Tullis, J., Stünitz, H., Teyssier, C. and Heilbronner, R. (2000): Deformation Microstructures in Quartz-feldspathic Rocks. In: M.W. Jessell and J.L. Urai (eds.), *Stress, Strain and Structure*, J. Virt. Expl., 2.
- Turner, F. J. (1953): Nature and dynamic interpretation of deformation lamellae in calcite of three marbles. *Am. J. Sci.*, 251, 276-298.
- Van Diepen, P. M. J., Wampers, M., and Ydewalle, G. (1998): Functional division of the visual field: moving masks and moving windows. In: G. Underwood (ed.), *Eye guidance in reading and scene perception*. Elsevier, Oxford.
- Vergani, G. D., Tankard, A. J., Belotti, H. J., and Welsink, H. J. (1995): Tectonic evolution and paleogeography of the Neuquén basin, Argentina. In: A. J. Tankard, S. Suárez, and J. Welsink (eds.), *Petroleum Basins of South America: AAPG Memoir*, 383-402.
- Vietor, T., Klotz, J., Echtler, H., and Oncken, O. (subm.): Forcing of Chilean forearc extension by plateau formation. .
- Wallace, R. E. (1951): Geometry of shearing stress and relation to faulting. *J. Geol.*, 59, 118-130.

- Walsh, J., and Watterson, J. (1991): Geometry and kinematics coherence and scale effects in normal fault systems. In: A. M. Roberts, G. Yielding, and B. Freeman (eds.), *The Geometry of Normal Faults*. Geol. Soc. London Spec. Publ., 193-203.
- Wemmer, K., and Ahrendt, H. (1997): Comparative K-Ar and Rb-Sr age determinations of retrograde processes on rocks from the KTB deep drilling project. *Geol. Rundschau*, 86, 272-285.
- Wettstein, A. (1886): Über die Fischfauna des Tertiären Glarner Schiefers. *Schweiz. Paläont. Ges. Abh.*, 13, 1-101.
- Willner, A. P., Pawlig, S., Massone, H.-J., and Hervé, F. (2001): Metamorphic evolution of spessartine quartzites (coticules) in the high-pressure, low-temperature complex of Bahia Mansa, Coastal Cordillera of South Central Chile. *Canad. Min.*, 39 (6), 1547-1569.
- Willner, A. P., Hervé, F., Thomson, S. N., and Massone, H.-J. (2003): Juxtaposition of different HP/LT metamorphic units during subduction erosion in a Mesozoic accretionary belt (Diego de Almagro Island/Southern Chile; 51°30'). *Terra Nostra*, 2, 86-87.
- Willner, A. P., Hervé, F., and Massone, H.-J. (2000): Mineral chemistry and pressure-temperature evolution of two contrasting high-pressure-low-temperature belts in the Chonos Archipelago, Southern Chile. *J. Petrol.*, 41 (3), 309-330.
- Yáñez, G., and Cembrano, J. (2004): Role of viscous plate coupling in the late Tertiary Andean tectonics. *J. Geophys. Res.*, 109, B02407, 1-21.
- Yoeli, P. (1965): Analytical hill shading. *Surv. Mapping*, 25, 573-579.
- Yoeli, P. (1967): The mechanization of analytical hill shading. *Cartogr. J.*, 4, 82-88.
- Ziegler, A. M., Barrett, S. F., and Scotese, C. R. (1981): Paleoclimate, sedimentation and continental accretion. *Phil. Trans. R. Soc. London*, A 301, 253-264.