CRHIAM
CENTRO DE RECURSOS HÍDRICOS PARA LA AGRICULTURA Y LA MINERÍA
ANID/FONDAP/15130015

ANNEX

TO THE CRHIAM 10 YEAR REPORT
WoS PUBLICATIONS
(FROM YEAR 1 TO YEAR 10)

10 YEARS

CONTRIBUTING TO WATER SECURITY
HIGHLIGHTING PERIOD 2018-2023

YEAR 1

1. Araneda, F.C., Díaz, M.E., Merino, K.O., Montoya, F.E., Urrutia, R. and Figueroa, R. 2014. Benthic macroinvertebrate community patterns of Mediterranean forested wetlands and their relation to changes in the hydroperiod. Limnetica, 33(2): 361-374.

2. Arumi, J.L., Maureira, H., Souvignet, M., Pérez, C., Rivera, D. and Oyarzún, R. 2016. Where does the water go? Understanding geohydrological behaviour of Andean catchments in south-central Chile. Hydrological Sciences Journal, 61(5): 844-855.

3. Betancourt, F., Bürger, R., Diehl, S. and Farås, S. 2014. Modeling and controlling clarifier–thickeners fed by suspensions with time-dependent properties. Minerals Engineering, 62: 91-101.

4. Carrasco-Benavides, M., Ortega-Farías, S., Lagos, L.O., Kleissl, J., Morales-Salinas, L. and Kilic, A. 2014. Parameterization of the satellite-based model (METRIC) for the estimation of instantaneous surface energy balance components over a drip-irrigated vineyard. Remote Sensing, 6(11): 11342-11371.

5. Chamorro, S. and Vidal, G. 2014. Determination of sublethal effects of the Kraft pulp mill effluent over feeding behavior by *Daphnia magna*. Toxicology Letters, 229: S58-S59.

6. Chartier, C., López, D. and Vidal, G. 2014. Anaerobic technology influence on pig slurry biofertirrigation: evaluation of enteric bacteria. Water, Air, & Soil Pollution, 225: 1-10.

7. De Los Reyes, C.P., Pozo, G. and Vidal, G. 2014. Nitrogen behavior in a free water surface constructed wetland used as posttreatment for anaerobically treated swine wastewater effluent. Journal of Environmental Science and Health, Part A, 49(2): 218-227.

8. Garcia-Pedrero, A., Gonzalo-Martin, C., Fonseca-Luengo, D. and Lillo-Saavedra, M. 2015. A GEOBIA methodology for fragmented agricultural landscapes. Remote Sensing, 7(1): 767-787.

9. Gutierrez, L. and Pawlik, M. 2015. Observations on the yielding behaviour of oil sand slurries under vane and slump tests. The Canadian Journal of Chemical Engineering, 93(8): 1392-1402.

10. Holzapfel, E., Jara, J. and Coronata, A.M. 2015. Number of drip laterals and irrigation frequency on yield and exportable fruit size of highbush blueberry grown in a sandy soil. Agricultural Water Management, 148: 207-212.

11. Jeldres, R.I., Toledo, P.G., Concha, F., Stickland, A.D., Usher, S.P. and Scales, P.J. 2014. Impact of seawater salts on the viscoelastic behavior of flocculated mineral suspensions. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 461: 295-302.

12. Ortiz, G., Villamar, C.A. and Vidal, G. 2014. Odor from anaerobic digestion of swine slurry: influence of pH, temperature and organic loading. Scientia Agrícola, 71: 443-450.

13. Pérez, N., Schwarz, A. and Urrutia, H. 2017. Treatment of acid mine drainage: Study of sulphate reduction in organic mixtures. Tecnología y Ciencias del Agua, 8(1): 53-64.

14. Pozo, K., Perra, G., Gomez, V., Barra, R. and Urrutia, R. 2014. Temporal trends of polycyclic aromatic hydrocarbons (PAHs) in a dated sediment core of a high atitude mountain lake: CHUNGARA lake-northern CHILE (18 S). Journal of the Chilean Chemical Society, 59(3): 2564-2567.

15. Rivera, D., Lillo, M. and Granda, S. 2014. Representative locations from time series of soil water content using time stability and wavelet analysis. Environmental Monitoring and Assessment, 186: 9075-9087.

16. Rivera, D., Sandoval, M. and Godoy, A. 2015. Exploring soil databases: a selforganizing map approach. Soil Use and Management, 31(1): 121-131.

17. Rojas, K., Vera, I. and Vidal, G. 2013. Influence of season and species *Phragmites australis* and *Schoenoplectus californicus* on the removal of organic matter and nutrients contained in sewage wastewater during the start up operation of the horizontal subsurface flow constructed wetland. Revista Facultad de Ingeniería Universidad de Antioquia, (69): 289-299.

18. Saavedra, J.H., Rozas, R.E. and Toledo, P.G. 2014. A molecular dynamics study of the force between planar substrates due to capillary bridges. Journal of Colloid and Interface Science, 426: 145-151.

19. Troncoso, P., Saavedra, J.H., Acuña, S.M., Jeldres, R., Concha, F. and Toledo, P.G. 2014. Nanoscale adhesive forces between silica surfaces in aqueous solutions. Journal of Colloid and Interface Science, 424: 56-61.

20. Valenzuela, G.E., Saavedra, J.H., Rozas, R.E. and Toledo, P.G. 2015. Analysis of energy and friction coefficient fluctuations of a Lennard-Jones liquid coupled to the Nosé–Hoover thermostat. Molecular Simulation, 41(7): 521-530.

21. Vera, I., Araya, F., Andrés, E., Sáez, K. and Vidal, G. 2014. Enhanced phosphorus removal from sewage in mesocosm-scale constructed wetland using zeolite as medium and artificial aeration. Environmental Technology, 35(13): 1639-1649.

22. Villamar, C.A., Neubauer, M.E. and Vidal, G. 2014. Distribution and availability of copper and zinc in a constructed wetland fed with treated swine slurry from an anaerobic lagoon. Wetlands, 34, 583-591.

23. Villamar, C.A., Silva, J., Bay-Schmith, E. and Vidal, G. 2014. Toxicity identification evaluation of anaerobically treated swine slurry: A comparison between *Daphnia magna and Raphanus sativus*. Journal of Environmental Science and Health, Part B, 49(11): 880-888.

YEAR 2

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TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

1. Álvarez, D., Fagel, N., Araneda, A., Jana-Pinninghoff, P., Keppens, E. and Urrutia, R. 2015. Late Holocene climate variability on the eastern flank of the Patagonian Andes (Chile): A 18O record from mollusks in Lago Cisnes (47 S). The Holocene, 25(8): 1220-1230.

2. Betancourt, F. and Rohde, C. 2016. Finite-volume schemes for Friedrichs systems with involutions. Applied Mathematics and Computation, 272: 420-439.

3. Betancourt, F., Concha, F. and Uribe, L. 2015. Settling velocities of particulate systems part 17. Settling velocities of individual spherical particles in Power-Law non-Newtonian fluids. International Journal of Mineral Processing, 143: 125-130.

4. Boscarino, S., Bürger, R., Mulet, P., Russo, G. and Villada, L.M. 2015. Linearly implicit IMEX Runge--Kutta methods for a class of degenerate convection-diffusion problems. SIAM Journal on Scientific Computing, 37(2): B305-B331.

5. Bürger, R., Chowell, G., Mulet, P. and Villada, L.M. 2015. Modelling the spatial-temporal progression of the 2009 A/H1N1 influenza pandemic in Chile. Mathematical Biosciences & Engineering, 13(1): 43-65.

6. Bürger, R., Kumar, S. and Ruiz-Baier, R. 2015. Discontinuous finite volume element discretization for coupled flow–transport problems arising in models of sedimentation. Journal of Computational Physics, 299: 446-471.

7. Campos, M., Perruchon, C., Vasilieiadis, S., Menkissoglu-Spiroudi, U., Karpouzas, D.G. and Diez, M.C. 2015. Isolation and characterization of bacteria from acidic pristine soil environment able to transform iprodione and 3, 5-dichloraniline. International Biodeterioration & Biodegradation, 104: 201-211.

8. Cárdenas, J., Diaz, A., Alvarez, D. and Urrutia, R. 2015. Nuevos registros de ostrácodos no-marinos (Crustacea, Ostracoda) en Patagonia Occidental, Chile. Gayana, 79(1): 106-109.

9. Chiang, G., Barra, R., Díaz-Jaramillo, M., Rivas, M., Bahamonde, P. and Munkittrick, K.R. 2015. Estrogenicity and intersex in juvenile rainbow trout (*Oncorhynchus mykiss*) exposed to Pine/Eucalyptus pulp and paper production effluent in Chile. Aquatic Toxicology, 164: 126-134.

10. Cornejo, P. and Sepúlveda, H.H. 2016. Computational fluid dynamics modelling of a midlatitude small scale upper ocean front. Journal of Applied Fluid Mechanics, 9(4): 1851-1863.

11. Correa-Araneda, F., Boyero, L., Figueroa, R., Sánchez, C., Abdala, R., Ruiz-García, A. and Graça, M.A. 2015. Joint effects of climate warming and exotic litter (*Eucalyptus globulus Labill.*) on stream detritivore fitness and litter breakdown. Aquatic Sciences, 77: 197-205.

12. Cuevas, R., Durán, N., Diez, M.C., Tortella, G.R. and Rubilar, O. 2015. Extracellular biosynthesis of copper and copper oxide nanoparticles by *Stereum hirsutum*, a native whiterot fungus from chilean forests. Journal of Nanomaterials, 2015(1): 789089.

13. Díaz-Jaramillo, M., Sandoval, N., Barra, R., Gillet, P. and Valdovinos, C. 2015. Spatio-temporal population and reproductive responses in *Perinereis gualpensis* (Polychaeta: Nereididae) from estuaries under different anthropogenic influences. Chemistry and Ecology, 31(4): 308-319.

14. Diez, M.C., Schalchli, H., Elgueta, S., Salgado, E., Millahueque, N., Rubilar, O., Tortella, G.R. and Briceño, G. 2015. Rhizosphere effect on pesticide degradation in biobeds under different hydraulic loads. Journal of Soil Science and Plant Nutrition, 15(2): 410-421.

15. Dörner, J., Huertas, J., Cuevas, J. G., Leiva, C., Paulino, L. and Arumi, J.L. 2015. Water content dynamics in a volcanic ash soil slope in southern Chile. Journal of Plant Nutrition and Soil Science, 178(4): 693-702.

16. Goni, C., Jeldres, R.I., Toledo, P.G., Stickland, A.D. and Scales, P. J. 2015. A non-linear viscoelastic model for sediments flocculated in the presence of seawater salts. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 482: 500-506.

17. Gonzalo-Martín, C., Lillo-Saavedra, M., Menasalvas, E., Fonseca-Luengo, D., García-Pedrero, A. and Costumero, R. 2016. Local optimal scale in a hierarchical segmentation method for satellite images: An OBIA approach for the agricultural landscape. Journal of Intelligent Information Systems, 46: 517-529.

18. Jarpa, M., Rozas, O., Salazar, C., Baeza, C., Campos, J.L., Mansilla, H.D. and Vidal, G. 2016. Comparison of the chemical precipitation, UV/H2O2 and Fenton processes to optimize removal of chronic toxicity from kraft mill effluents. Desalination and Water Treatment, 57(30): 13887-13896.

19. Jeldres, R.I., Concha, F. and Toledo, P.G. 2015. Population balance modelling of particle flocculation with attention to aggregate restructuring and permeability. Advances in Colloid and Interface Science, 224: 62-71.

20. Korzhenevskii, A.L., Rozas, R.E. and Horbach, J. 2015. Complex banded structures in directional solidification processes. Journal of Physics: Condensed Matter, 28(3): 035001.

21. Laskowski, J. and Castro, S. 2015. Flotation in concentrated electrolyte solutions. International Journal of Mineral Processing, 144: 50-55.

22. López, D., Fuenzalida, D., Vera, I., Rojas, K. and Vidal, G. 2015. Relationship between the removal of organic matter and the production of methane in subsurface flow constructed wetlands designed for wastewater treatment. Ecological Engineering, 83: 296-304.

23. Morales, G., Pesante, S. and Vidal, G. 2015. Effects of black liquor shocks on activated sludge treatment of bleached kraft pulp mill wastewater. Journal of Environmental Science and Health, Part A, 50(6): 639-645.

24. Pavez, J., Cabrera, F., Azócar, L., Torres, A. and Jeison, D. 2015. Ultrafiltration of non-axenic microalgae cultures: Energetic requirements and filtration performance. Algal research, 10: 121-127.

ANNEX

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

25. Plaza de los Reyes, C. and Vidal, G. 2015. Effect of variations in the nitrogen loading rate and seasonality on the operation of a free water surface constructed wetland for treatment of swine wastewater. Journal of Environmental Science and Health, Part A, 50(13): 1324-1332.

26. Quezada, G.R., Toledo, P.G., Saavedra, J.H. and Rozas, R.E. 2016. Generation of spatially correlated network models of porous media. Transport in Porous Media, 111: 499-515.

27. Ramírez, E.E., Gonzalez, M.A., Cifuentes, A.S., Inostroza, I. and Urrutia, R.E. 2015. Culture and growth of two benthic diatoms species isolated from the Salar del Huasco (North of Chile, 20° S) at different conditions of temperature, light and nutrient. Gayana Botanica, 72(2): 165-176.

28. Reyes-Contreras, C. and Vidal, G. 2015. Methanogenic toxicity evaluation of chlortetracycline hydrochloride. Electronic Journal of Biotechnology, 18(6): 445-450.

29. Rivera, D., Rivas, Y. and Godoy, A. 2015. Uncertainty in a monthly water balance model using the generalized likelihood uncertainty estimation methodology. Journal of Earth System Science, 124: 49-59.

30. Schalchli, H., Hormazábal, E., Becerra, J., Briceño, G., Hernández, V., Rubilar, O. and Diez, M.C. 2015. Volatiles from white-rot fungi for controlling plant pathogenic fungi. Chemistry and Ecology, 31(8): 754-763.

31. Thorneywork, A.L., Rozas, R.E., Dullens, R.P. and Horbach, J. 2015. Effect of hydrodynamic interactions on self-diffusion of quasi-two-dimensional colloidal hard spheres. Physical Review Letters, 115(26): 268301.

32. Torfs, E., Maere, T., Bürger, R., Diehl, S. and Nopens, I. 2015. Impact on sludge inventory and control strategies using the benchmark simulation model no. 1 with the Bürger-Diehl settler model. Water Science and Technology, 71(10): 1524-1535.

33. Villamar, C.A., Rivera, D., Neubauer, M.E. and Vidal, G. 2015. Nitrogen and phosphorus distribution in a constructed wetland fed with treated swine slurry from an anaerobic lagoon. Journal of Environmental Science and Health, Part A, 50(1): 60-71.

34. Yévenes, M., Figueroa, R., Parra, O. and Farías, L. 2015. Inter-annual variability of dissolved inorganic nitrogen in the Biobío River, Central Chile: an analysis base on a decadal database along with 1-D reactive transport modeling. Hydrology and Earth System Sciences Discussions, 12(1): 705-738.

YEAR 3

ANNEX

TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

1. Aitken, D., Rivera, D., Godoy-Faúndez, A. and Holzapfel, E. 2016. Water scarcity and the impact of the mining and agricultural sectors in Chile. Sustainability, 8(2): 128.

2. Almanza, V., Bicudo, C.E. de M., Parra, O. and Urrutia, R. 2016. Características morfológicas y limnológicas de las floraciones de *Ceratium furcoides* (Dinophyta) en un lago somero de Chile Central. Limnetica, 35(1): 253-268.

3. Almanza, V., Parra, O., Bicudo, C.E. de M., Baeza, C., Beltran, J., Figueroa, R. and Urrutia, R. 2016. Occurrence of toxic blooms of *Microcystis aeruginosa* in a central Chilean (36° Lat. S) urban lake. Revista Chilena de Historia Natural, 89: 1-12.

4. Almanza, V., Parra, O., De M Bicudo, C.E., González, M.A., Lopez, M. and Urrutia, R. 2016. Floraciones de fitoplancton y variación de la estructura comunitaria fitoplanctónica en tres lagos someros eutróficos de Chile Central. Gayana. Botánica, 73(2): 191-205.

5. Almanza-Marroquín, V., Figueroa, R., Parra, O., Fernández, X., Baeza, C., Yañez, J. and Urrutia, R. 2016. Bases limnológicas para la gestión de los lagos urbanos de Concepción, Chile. Latin American Journal of Aquatic Research, 44(2): 313-326.

6. Ambiado, K., Bustos, C., Schwarz, A. and Bórquez, R. 2017. Membrane technology applied to acid mine drainage from copper mining. Water Science and Technology, 75(3): 705-715.

7. Araneda, A.D., Undurraga, P., Lopez, D., Saez, K. and Barra, R. 2016. Use of earthworms as a pesticide exposure indicator in soils under conventional and organic management. Chilean Journal of Agricultural Research, 76(3): 356-362.

8. Araya, F., Vera, I., Sáez, K. and Vidal, G. 2016. Effects of aeration and natural zeolite on ammonium removal during the treatment of sewage by mesocosm-scale constructed wetlands. Environmental Technology, 37(14): 1811-1820.

9. Baeza, R., Jarpa, M. and Vidal, G. 2016. Polyhydroxyalkanoate biosynthesis from paper mill wastewater treated by a moving bed biofilm reactor. Water, Air, & Soil Pollution, 227: 1-8.

10. Barth, A., Bürger, R., Kroeker, I. and Rohde, C. 2016. Computational uncertainty quantification for a clarifier-thickener model with several random perturbations: A hybrid stochastic Galerkin approach. Computers & Chemical Engineering, 89: 11-26.

11. Bastías, N. and Montalva, G.A. 2016. Chile strong ground motion flatfile. Earthquake Spectra, 32(4): 2549-2566.

12. Beltrán, C., Jeison, D., Fermoso, F.G. and Borja, R. 2016. Batch anaerobic co-digestion of waste activated sludge and microalgae (*Chlorella sorokiniana*) at mesophilic temperature. Journal of Environmental Science and Health, Part A, 51(10): 847-850.

13. Bórquez, R. and Ferrer, J. 2016. Seawater desalination by combined nanofiltration and ionic exchange. Desalination and Water Treatment, 57(58): 28122-28132.

14. Boscarino, S., Bürger, R., Mulet, P., Russo, G. and Villada, L.M. 2016. On linearly implicit IMEX Runge-Kutta methods for degenerate convection-diffusion problems modeling polydisperse sedimentation. Bulletin of the Brazilian Mathematical Society, New Series, 47: 171-185.

15. Briceño, G., Schalchli, H., Mutis, A., Benimeli, C.S., Palma, G., Tortella, G.R. and Diez, M.C. 2016. Use of pure and mixed culture of diazinon-degrading Streptomyces to remove other organophosphorus pesticides. International Biodeterioration & Biodegradation, 114: 193-201.

16. Briceño, G., Schalchli, H., Rubilar, O., Tortella, G.R., Mutis, A., Benimeli, C.S., Palma, G. and Diez, M.C. 2016. Increased diazinon hydrolysis to 2-isopropyl-6-methyl-4-pyrimidinol in liquid medium by a specific *Streptomyces* mixed culture. Chemosphere, 156: 195-203.

17. Bürger, R., Chalons, C. and Villada, L.M. 2016. Antidiffusive L agrangianremap schemes for models of polydisperse sedimentation. Numerical Methods for Partial Differential Equations, 32(4): 1109-1136.

18. Bürger, R., Diehl, S. and Mejías, C. 2016. On time discretizations for the simulation of the batch settling–compression process in one dimension. Water Science and Technology, 73(5): 1010-1017.

19. Bürger, R., Kumar, S., Kumar, K.S. and Ruiz-Baier, R. 2016. Discontinuous approximation of viscous two-phase flow in heterogeneous porous media. Journal of Computational Physics, 321: 126-150.

20. Bürger, R., Mulet, P. and Rubio, L. 2016. Polynomial viscosity methods for multispecies kinematic flow models. Numerical Methods for Partial Differential Equations, 32(4): 1265-1288.

21. Bürger, R., Chalons, C. and Villada, L.M. 2016. On second-order antidiffusive Lagrangian-remap schemes for multispecies kinematic flow models. Bulletin of the Brazilian Mathematical Society, New Series, 47: 187-200.

22. Campos, J.L., Val del Rio, A., Pedrouso, A., Raux, P., Giustinianovichc, E.A. and Mosquera-Corral, A. 2017. Granular biomass floatation: a simple kinetic/stoichiometric explanation. Chemical Engineering Journal, 311: 63-71.

23. Campos, M., Karas, P.S., Perruchon, C., Papadopoulou, E.S., Christou, V., Menkissoglou-Spiroudi, U., Diez, M.C. and Karpouzas, D.G. 2017. Novel insights into the metabolic pathway of iprodione by soil bacteria. Environmental Science and Pollution Research, 24: 152-163.

24. Castro, S., Lopez-Valdivieso, A. and Laskowski, J.S. 2016. Review of the flotation of molybdenite. Part I: Surface properties and floatability. International Journal of Mineral Processing, 148: 48-58.

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

25. Chamorro, S., López, D., Brito, P., Jarpa, M., Piña, B. and Vidal, G. 2016. Sublethal effects of chlorine-free kraft mill effluents on *Daphnia magna.* Bulletin of Environmental Contamination and Toxicology, 97: 843-847.

26. Chamorro, S., Vergara, J.P., Jarpa, M., Hernandez, V., Becerra, J. and Vidal, G. 2016. Removal of stigmasterol from kraft mill effluent by aerobic biological treatment with steroidal metabolite detection. Journal of Environmental Science and Health, Part A, 51(12): 1012-1017.

27. Correa-Araneda, F., Díaz, M.E., Olguín, M., Encina-Montoya, F., Gomez-Caponni, F. and Figueroa, R. 2016. Hydric regime in Mediterranean freshwater forested wetlands and their relationship with native and non-native forest cover. Limnetica, 35(2): 269-280.

28. Correa-Araneda, F., Guevara-Mora, M., Díaz, M.E. and Figueroa, R. 2016. An edaphological, morphological and climatic classification of freshwater forested wetlands from Chile. Gayana, 80(1): 6-15.

29. Costumero, R., Sánchez, J., García-Pedrero, Á., Rivera, D., Lillo, M., Gonzalo-Martín, C. and Menasalvas, E. 2017. Geography of legal water disputes in Chile. Journal of Maps, 13(1): 7-13.

30. Elder, K.R., Achim, C.V., Granato, E., Ying, S.C. and Ala-Nissila, T. 2017. Commensurate-incommensurate transition and domain wall dynamics of adsorbed overlayers on a honeycomb substrate. Europhysics Letters, 116(5): 56002.

31. Elgueta, S., Santos, C., Lima, N. and Diez, M.C. 2016. Atrazine dissipation in a biobed system inoculated with immobilized white-rot fungi. Archives of Agronomy and Soil Science, 62(10): 1451-1461.

32. Elgueta, S., Santos, C., Lima, N. and Diez, M.C. 2016. Immobilization of the white-rot fungus *Anthracophyllum discolor* to degrade the herbicide atrazine. Amb Express, 6: 1-11.

33. Espinosa, J. and Rivera, D. 2016. Variations in water resources availability at the Ecuadorian páramo due to land-use changes. Environmental Earth Sciences, 75: 1-15.

34. Fernández, F.J., Ponce, R.D., Blanco, M., Rivera, D. and Vásquez, F. 2016. Water variability and the economic impacts on small-scale farmers. A farm risk-based integrated modelling approach. Water Resources Management, 30: 1357-1373.

35. Fernández, I.C., Manuel-Navarrete, D. and Torres-Salinas, R. 2016. Breaking resilient patterns of inequality in Santiago de Chile: Challenges to navigate towards a more sustainable city. Sustainability, 8(8): 820.

36. Fu, W.C., Opazo, M.A., Acuña, S.M. and Toledo, P.G. 2017. New route for self-assembly of -lactalbumin nanotubes and their use as templates to grow silver nanotubes. PLoS One, 12(4): e0175680.

37. Gallardo, F., Briceño, G., Flores, M.J. and Diez, M.C. 2016. Recycling pulp mill sludge to volcanic soil: a column leaching study. Journal of Soil Science and Plant Nutrition, 16(1): 248-261.

38. Garreaud, R., Falvey, M. and Montecinos, A. 2016. Orographic precipitation in coastal southern Chile: Mean distribution, temporal variability, and linear contribution. Journal of Hydrometeorology, 17(4): 1185-1202.

39. Goñi, C., Celi, D. and Concha, F. 2017. Determination of the volumetric solids fraction of saturated polydisperse ore tailing sediments. Powder Technology, 305: 528-537.

40. Gutierrez-Lopez, A., Vargas-Baecheler, J., Resendiz-Torres, V. and Cruz-Paz, I. 2016. Simplified Desing of a Drought Index, Using a Mixed Probability Function. Tecnología y Ciencias del Agua, 7(5): 135-149.

41. Huertas, J., Cuevas, J.G., Paulino, L., Salazar, F., Arumi, J.L. and Dörner, J. 2016. Dairy slurry application to grasslands and groundwater quality in a volcanic soil. Journal of Soil Science and Plant Nutrition, 16(3): 745-762.

42. Krayzelova, L., Bartacek, J., Díaz, I., Jeison, D., Volcke, E.I. and Jenicek, P. 2015. Microaeration for hydrogen sulfide removal during anaerobic treatment: a review. Reviews in Environmental Science and Bio/Technology, 14: 703-725.

43. Link, O., Castillo, C., Pizarro, A., Rojas, A., Ettmer, B., Escauriaza, C. and Manfreda, S. 2017. A model of bridge pier scour during flood waves. Journal of Hydraulic Research, 55(3): 310-323.

44. López, D., Sepúlveda, M. and Vidal, G. 2016. *Phragmites australis* and *Schoenoplectus californicus* in constructed wetlands: Development and nutrient uptake. Journal of Soil Science and Plant Nutrition, 16(3): 763-777.

45. Meyer, G., Pedreros, P. and Figueroa, R. 2016. Effects of agricultural water withdrawals in the fluvial habitat of benthic macroinvertebrates in Chile. Hidrobiologica, 26(3): 373-382.

46. Morales, G., Sanhueza, P. and Vidal, G. 2015. Effect of the carbon source on nitrifying in an activated sludge system treating aquaculture wastewater. Journal of Agricultural Science, 7(9): 36.

47. Muñoz, E., Arumi, J.L., Wagener, T., Oyarzún, R. and Parra, V. 2016. Unraveling complex hydrogeological processes in Andean basins in southcentral Chile: An integrated assessment to understand hydrological dissimilarity. Hydrological Processes, 30(26): 4934-4943.

48. Neumann, P., Pesante, S., Venegas, M. and Vidal, G. 2016. Developments in pre-treatment methods to improve anaerobic digestion of sewage sludge. Reviews in Environmental Science and Bio/Technology, 15: 173-211.

49. Novoa, V., Rojas, O., Arumi, J.L., Ulloa, C., Urrutia, R. and Rudolph, A. 2016. Variability in the Water Footprint of Cereal Crops, Cachapoal River, Chile. Tecnología y Ciencias del Agua, 7(2): 35-50.

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

50. Ortega-Bravo, J.C., Ruiz-Filippi, G., Donoso-Bravo, A., Reyes-Caniupán, I.E. and Jeison, D. 2016. Forward osmosis: Evaluation thin-film-composite membrane for municipal sewage concentration. Chemical Engineering Journal, 306: 531-537.

51. Pedreros, P., Guevara-Mora, M., Urrutia, R. and Stehr, A. 2016. Importancia de la vegetación ribereña de Nothofagus dombeyi (Mirb.) Oerst. en el régimen térmico de sistemas fluviales andinos del sur de Chile. Gayana. Botánica, 73(1): 32-41.

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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YEAR 5

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

47. Muñoz, E., Guzmán, C., Medina, Y., Boll, J., Parra, V. and Arumi, J.L. 2019. An Adaptive Basin Management Rule to Improve Water Allocation Resilience under Climate Variability and Change. Case Study in the Laja Lake Basin in Southern Chile. Water, 11(8): 1733-1741.

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YEAR 7

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ANNEX

TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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YEAR 8

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30. Echeverry, L., Estrada, D., Toledo, P. and Gutiérrez, L. 2021. The depressing effect of an anionic polyacrylamide on molybdenite flotation and the importance of polymer Anionicity. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 612: 126015.

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YEAR 9

ANNEX

TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

1. Alarcón, S., Tereucán, G., Cornejo, P., Contreras, B. and Ruíz, A. 2022. Metabolic and antioxidant effects of inoculation with arbuscular mycorrhizal fungi in crops of flesh-coloured Solanum tuberosum treated with fungicides. Journal of The Science of Food and Agriculture, 102(6): 2270-2280.

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ANNEX

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

46. Menares, T., Romero, R., Sobrevía, F., Ronsse, F., Casas-Ledón, Y., Osorio-Vargas, P. and Arteaga-Pérez, L. 2022. Production of limonene from waste tires via catalytic fast pyrolysis: a statistical–based screening on Ni-, Pd-, Co-, and Fe-supported catalysts. Biomass Conversion and Biorefinery, 13: 11259–11274.

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YEAR 10

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WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

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ANNEX

TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

78. Torres, R., Bórquez, R., Alvez, A., Díaz, N. and Félez, J. 2023. Community desalination as new hydrosocial assemblages and scalar politics to satisfy the human right to water in Chile. Water Alternatives, 16(2): 659-682.

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SUMMARY OF WOS PUBLICATIONS IN NUMBERS

SCOPE OF 10-YEARS OF WORK

ANNEX

TO THE CRHIAM 10 YEAR REPORT

WOS PUBLICATIONS (FROM YEAR 1 TO YEAR 10)

Throughout CRHIAM's 10-year history, its main objective has been to promote cutting-edge research with a global impact that positions it as a center of excellence in water resources. This has been demonstrated through the 719 WoS publications, generated by principal, associates and others (adjuncts) researchers. Throughout the Center´s history, they have managed to consolidate their research work, showing notable growth, equivalent to 45% more WoS publications in the second period compared to the first, see Figure 1.

The excellence of their research work is also demonstrated by analyzing the number of WoS publications in the top 10% of impact for the Center's main disciplines, which allows us to know how many of the publications have been in category Q1 and Q2 journals. During the first period of CRHIAM, out of a total of 256 WoS publications, 91% were in the top 10% (categories Q1 and Q2), while of the total of 463 WoS publications during the second period, 95% of them were published in Q1 and Q2 journals. Figure 1 also shows the growth in the average impact of WoS publications in which CRHIAM researchers participated, reaching an average over the 10 years of operation equal to 3.36. Comparing both periods of the Center, it is observed that the average impact of WoS publications in the second period (4.18) exceeded that of the first (2.54) by 39%, demonstrating the consolidation of excellent research work over time. The last two years (years 9 and 10) in no way show a decline in the quality of CRHIAM research; the lower number of publications compared to, for example, year 8 is due to a preference for greater impact, the highest in the entire life of CRHIAM.

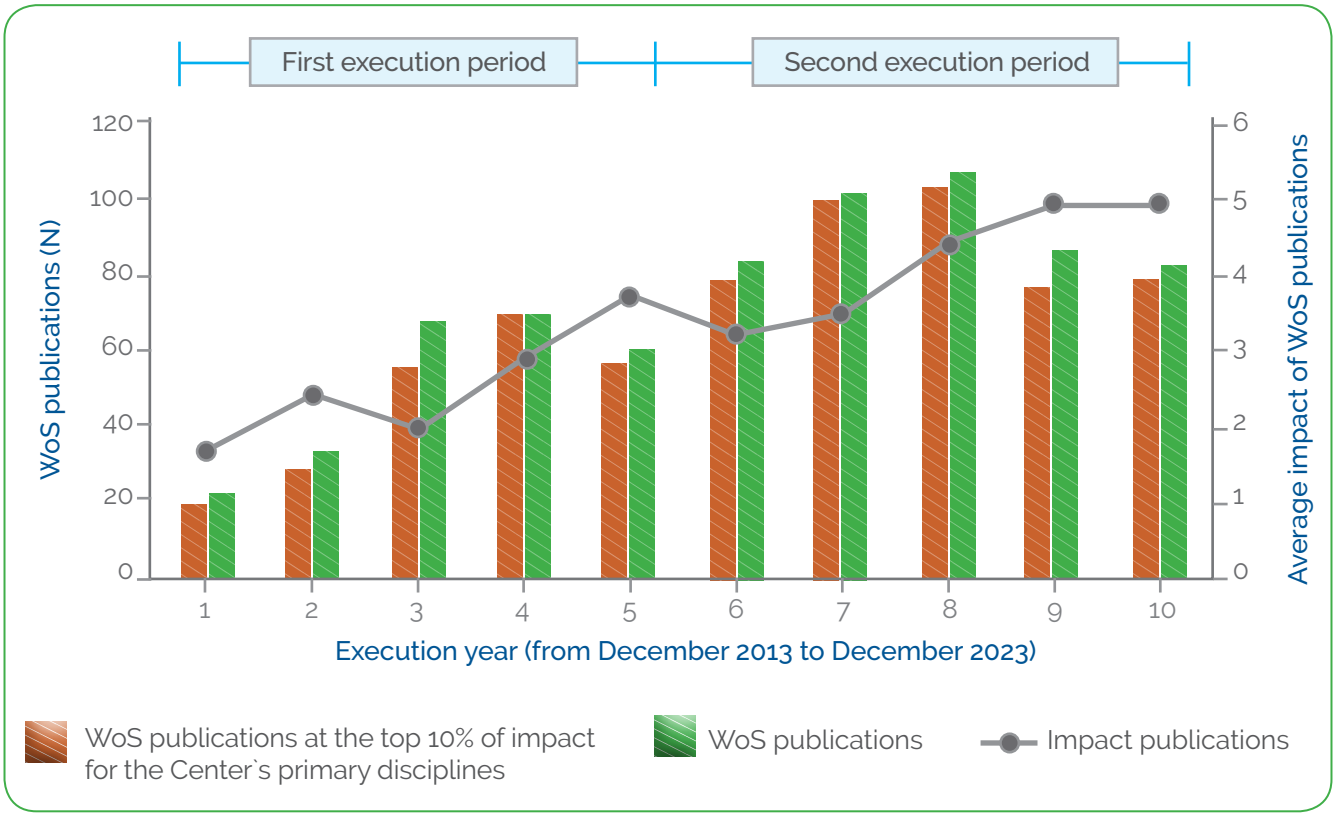

Figure 1. CRHIAM's WoS publications in categories Q1 and Q2 (top 10% of impact), total per year and their average impact during the Center's 10-year execution (from December 2013 to December 2023).

The impact of CRHIAM's research is also reflected in the number of citations to its WoS publications. Comparing this indicator between years 5 and 10, the Center's annual average number of citations has tripled, reaching a value equivalent to 13.1 by the end of the Center's tenth year of execution (December 2023).

A notable aspect of CRHIAM research is the collaborative work among its members, whether within the same line of research or across multiple areas, with the goal of generating interdisciplinary scientific evidence, integrating different areas of knowledge, and addressing problems comprehensively. Figure 2 shows the number of indexed publications produced by more than one member of the Center. During the first period of operation, 47 publications were published by CRHIAM members, equivalent to 18% of the total publications for the aforementioned period (from December 2013 to October 2018). This percentage increased in the second period (from October 2018 to December 2023); of the total publications in this period (N=463), 24% were produced through the combined efforts of Center researchers. In summary, of the total of 719 publications generated by CRHIAM researchers during its 10 years of operation, 22% were co-authored by Center researchers. The total number of WoS publications (from December 2013 to December 2023) among CRHIAM members exceeds by eight articles the expected cumulative value (N=149) for the Center's 10 years of operation. The curve in Figure 2 shows the consistent work of CRHIAM researchers to promote associated and interdisciplinary water-related research. Figure 2 shows that the work of CRHIAM researchers within CRHIAM is growing steadily, which is remarkable given their diverse backgrounds. The figure shows that collaboration within CRHIAM is a generality rather than an exception.

Figure 2. CRHIAM's WoS publications generated among Center members during the 10-year period (from December 2013 to December 2023).

Furthermore, CRHIAM has consistently worked to promote its research work and enhance it through the development of collaborative networks with both international and national research centers. In this regard, the work of all the Center's researchers is noteworthy, as over the course of its 10 years of operation, 411 WoS publications have been published with researchers from international institutions, representing 57% of the total publications during the Center's tenth year of operation (from December 2013 to December 2023). Of the total of 411 publications, 44% correspond to the first CRHIAM period and 56% to the second period, reaffirming the commitment of CRHIAM researchers to excellent, collaborative, and interdisciplinary research at the highest standards (see Figure 3). In the last two years, researchers traveled much less, concentrating on preparing the CRHIAM continuity project, which led to a decrease in WoS publications with international researchers.

Figure 3. CRHIAM's WoS joint publications with international institutions and/or research centers (from December 2013 to December 2023).

On the other hand, WoS publications by CRHIAM researchers in collaboration with national institutions or research centers amounted to 205 during the Center's 10 years of operation (from December 2013 to December 2023). Of these, 13% correspond to the Center's first period (from December 2013 to October 2018) and 87% to the second (from October 2018 to December 2023) (see Figure 4). The total number of 205 WoS publications with national institutions or research centers represents 29% of the total publications produced during the Center's 10 years of operation. Of the total of 205 publications, 16% correspond to the first CRHIAM period and 84% to the second period, which highlights the importance for CRHIAM of maximizing effective contact with Chilean institutions that focus on improving water use and finding new water sources.

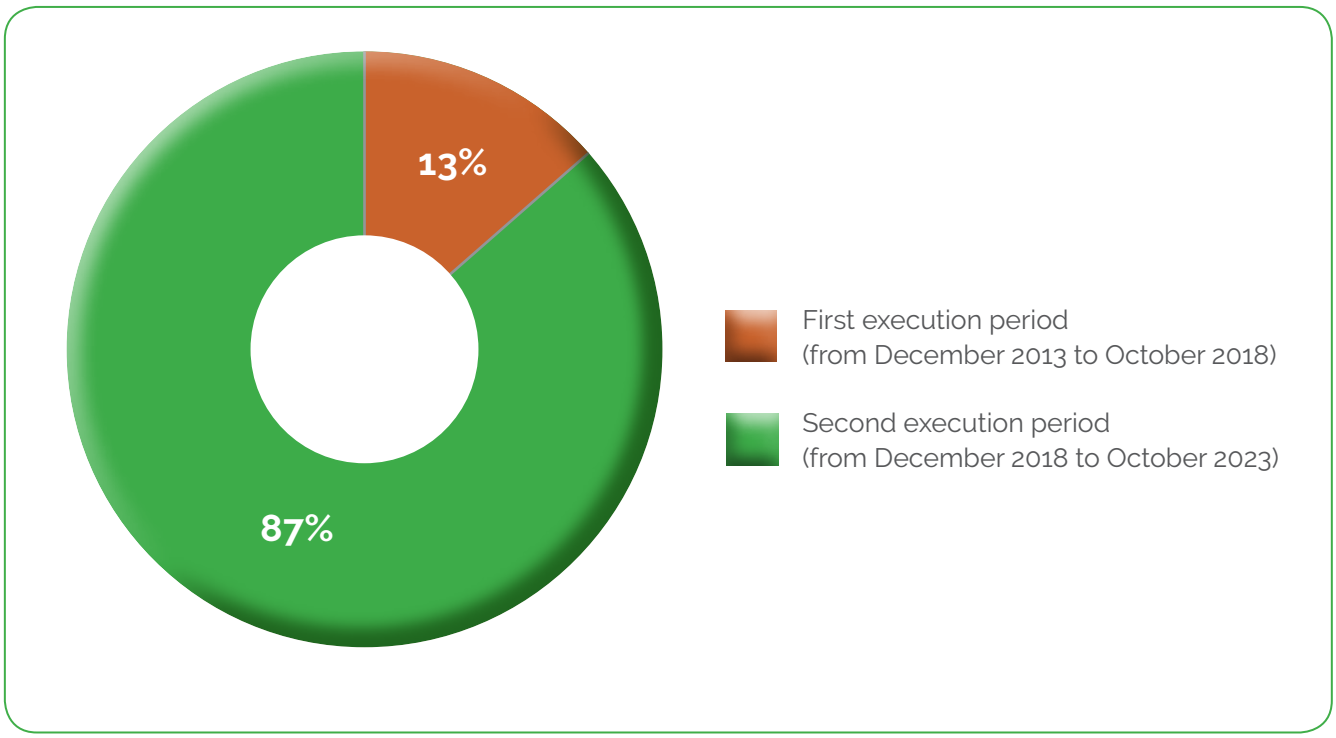

Figure 4. CRHIAM's WoS joint publications with national institutions or research centers (from December 2013 to December 2023).

CRHIAM

CENTRO DE RECURSOS HÍDRICOS PARA LA AGRICULTURA Y LA MINERÍA

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