Dr Alonso Vicente Pizarro Valdebenito BSc MSc PhD

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After completing his BEng and MSc studies at University of Concepcion (Chile), Alonso joined the University of Basilicata, Italy, in September 2015 as a PhD student, supported by the Erasmus Mundus programme (ref. 552129-EM-1-2014-1-IT-ERA MUNDUS-EMA21). Despite his short academic career (he awarded his PhD in March 2019), Alonso has already published several scientific contributions, attracting a significant number of citations. Alonso has a broad interest in hydrology, hydraulics, sediment transport, flood prediction, extreme flood events, stochastic processes, environmental monitoring using Unmanned Aerial Systems (UASs), and remote sensing applications for fluvial monitoring. Alonso utilises advanced surveying and flow measurement techniques and laboratory experiments. He is proficient in advanced programming languages (Matlab and Python) and GIS software (QGIS), which he uses to manipulate and analyse complex datasets, regularly publishing research articles in leading international journals. In addition, he speaks four different languages: Spanish (mother tongue), Italian (fluent), English (fluent), and German (basic), and thanks to his experience in different academic environments, he has acquired the capacity to fast adapt to new situations through a proactive and flexible approach. Finally, Alonso has also received a prize for his Master Thesis, and he has already demonstrated the ability to attract funding for his researches from different sources. Currently, Alonso is Assistant Professor at Diego Portales University (Chile).

▪ Personal Information

Name: Pizarro Valdebenito, Alonso Vicente

Nationality: Chilean

Date of birth: 27/10/1989

Researcher unique identifiers: SCOPUS Author ID: 16449058000; ORCID ID: 0000-0002-7242-6559

▪ Work Experience

07/2021 – To date	**Assistant Professor** Diego Portales University, Department of Civil Engineering – Santiago, Chile.
10/2020 – To date	**Postdoctoral Researcher** University of Naples Federico II, Department of Civil, Architectural and Environmental Engineering – Naples 80138, Italy.
10/2019 – 10/2020	**Postdoctoral Researcher** University of Basilicata, Department of European and Mediterranean Cultures: Architecture, Environment, and Cultural Heritage (DICEM) – Matera 75100, Italy.

▪ Education

19/09/2015 – 21/03/2019	**PhD in Cities and Landscapes (Water management and hydrology)** **(final mark 100/100 magna cum laude)** University of Basilicata, Department of European and Mediterranean Cultures: Architecture, Environment, and Cultural Heritage (DICEM) – Matera 75100, Italy.
01/08/2013 – 14/09/2015	**MSc in Civil & Environmental Engineering (final mark 100/100 magna cum laude)**

University of Concepción, Department of Civil Engineering, Concepción 4030000, Chile.

03/03/2008 – 30/04/2012 **BSc in Civil Engineering (final mark 100/100 magna cum laude)**
University of Concepción, Department of Civil Engineering, Concepción 4030000, Chile.

- **Study/Research visits**

21/06/2018 – 07/07/2018 **Visiting PhD researcher**
Institution: University of Concepción, Department of Civil Engineering, Concepción, Chile.
Goal of the Visit: Modelling bridge pier scour under flood waves considering field measurements and theoretical aspects.

11/09/2017 – 30/03/2018 **Visiting PhD researcher**
Institution: National Technical University of Athens, Department of Water Resources and Environmental Engineering, Athens, Greece.
Goal of the Visit: Modelling the river discharge process from a stochastic point of view: Synthetic generation of streamflow values and applications to bridge scour.

01/08/2012 – 31/07/2013 **Visiting MSc student (DAAD Scholarship)**
Institution: Technical University of Braunschweig, Braunschweig, Germany.

- **Fellowships and Awards**

19/09/2015 – 21/03/2019 **PhD Scholarship, Erasmus Mundus programme** (ref. 552129-EM-1-2014-1-IT-ERA MUNDUS-EMA21).

19/06/2017 – 23/06/2017 **International Summer School Scholarship:** *"Geocomputation using free and open source software"*. Three grants out of about 20 participants.

11/07/2016 – 15/07/2016 **International Summer School Scholarship:** *"Applied course on UAVs for environmental monitoring"*. Three grants out of about 20 participants.

14/12/2015 ***"Edgard Pino"* Award:** Best thesis in the year 2015. Department of Civil Engineering, University of Concepción. One award per year out of about 70 participants.

01/08/2013 – 14/09/2015 **Master Scholarship,** Department of Civil Engineering, University of Concepción. They are awarded only to the best students, based on their BEng qualifications.

01/08/2012 – 31/07/2013 **Deutscher Akademisher Austaush Dienst (DAAD) Scholarship** (grant ref. A1271553). It is awarded only to the best students over the world.

- **Teaching Activities**

2022-01	**Course: Hydraulics (Undergraduate level).** Diego Portales University, Chile.
2022-01	**Course: Water Resources Modelling (Master level).** Diego Portales University, Chile.
2021-02	**Course: Hydraulics (Undergraduate level).** Diego Portales University, Chile.
2021-02	**Course: Water Resources Modelling (Master level).** Diego Portales University, Chile.
2020-02	**Visiting lecturer in *Ingegneria dei sistemi idraulici e dei trasporti* (Master level). Course: *Bonifiche e Sistemazioni Idrauliche.*** University of Naples Federico II, Italy.

- **Projects**

2022 – to date	***Early warning system for drought management of ground watersurface water systems in Chilean Patagonia*.** Reference project number: FSEQ210010. Coordinator: Felipe Aguilar Sandoval (Aysen University, Chile).
2022 – to date	***Monitoreo de Ríos en Patagonia bajo Cambio Acelerado Usando Sensores basados en Análisis de Imágenes, Ultrasonido y Láser*.** Reference project number: FOVI210055. Coordinator: Gerard Olivar Tost (Aysen University, Chile).
2022 – to date	***Hidráulica Online*.** Reference project number: Concurso Cursos Semipresenciales/Canvas UDP. Coordinator: Prof. Alonso Pizarro (Diego Portales University, Chile).
2022 – to date	***Bridge Erosion CriticAL Modelling (BE-CALM)*.** Reference project number: Proyecto inserción en la investigación UDP (grant no. 1100327026). Coordinator: Prof. Alonso Pizarro (Diego Portales University, Chile).
2021 – to date	***INNOVAción docenTE Hidraulica* (INNOVATE HIDRAULICA).** Reference project number: INNOVATE HIDRAULICA. Coordinator: Prof. Alonso Pizarro (Diego Portales University, Chile).
2020 – to date	***An integrative information aqueduct to close the gaps between global satellite observation of water cycle and local sustainable management of water resources* (iAqueduct).** Reference project number: iAqueduct. Coordinator: Prof. Zhongbo (Bob) Su (University of Twente, Netherlands).
2018 – to date	***Harmonisation of UAS techniques for agricultural and natural ecosystems monitoring* (HARMONIOUS)**. Reference project number: CA COST Action CA16219. Coordinator: Prof. Salvatore Manfreda (University of Naples Federico II, Italy).
2015 – 2019	***Euro-Latin America partnership in natural Risk mitigation and protection of the Cultural Heritage* (ELARCH)**. Coordinator: Prof. Michelangelo Laterza (University of Basilicata, Italy).

2018 ***Monitoring of the infiltration state of Soils in Semiarid Environments*** (Cooperation project between Italy and Iran funded by CRUI, 2017). Visiting researcher at Ferdowsi University of Mashhad, Mashhad, Iran. Coordinator: Prof. Salvatore Manfreda (University of Naples Federico II, Italy).

2017 – 2018 ***Bridge Pier Scour Under Flood Waves***. Reference project number: Fondecyt 1150997. Coordinator: Prof. Oscar Link (University of Concepcion, Chile).

- **Conference Organisation**
  - Convener of EGU 2022 session (proposed) entitled *"HS1.1 – Advances in river monitoring and modelling for a climate emergency: data-scarce environments, real-time approaches, inter-comparison of innovative and classical frameworks, uncertainties, harmonisation of methods and good practices"*.
  - Convener of EGU 2021 session entitled *"HS1.1.2 – Advances in river monitoring and modelling for a climate emergency: data-scarce environments, real-time approaches, inter-comparison of innovative and classical frameworks, uncertainties, harmonisation of methods and good practices"*.
  - Primary convener of EGU 2020 session entitled *"HS1.1.4 – Advances in river monitoring and modelling: data-scarce environments, real-time approaches, Inter-comparison of innovative and classical frameworks, uncertainties, Harmonisation of methods and good practices"*.

- **Invited Talks**
  - Presentation at webinar organised by the EU-COST *HARMONIOUS* project on *"Flood ExtReme velOCity Estimations (FEROCE): Seeding metrics to image-velocimetry performances"* (June 4th 2020) https://t.co/BkAMWfD5BZ?amp=1

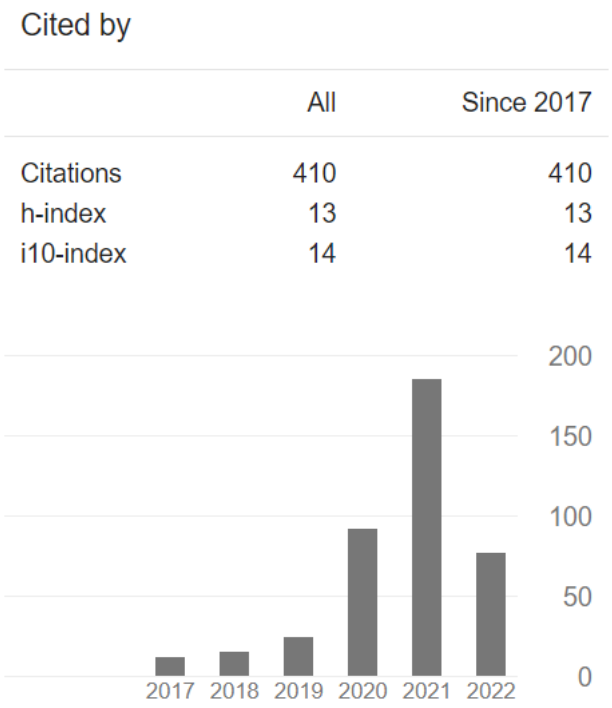
- **Professional Society Memberships**
  - Member of the European Geophysical Union (EGU).
  - Member of the International Association of Hydrological Sciences (IAHS), and friend of the Measurement and Observations in the 21st Century (MOXXI) group.
  - Member of the Italian Hydrological Society (SII-IHS).
  - Member of the Chilean Society of Hydraulic Engineering (SOCHID).
  - Member of the International Association for Bridge Maintenance and Safety (IABMAS).

- **Reviewer**
  - Canadian Journal of Civil Engineering (Canadian Science Publishing).
  - Engineering Structures (Elsevier).
  - Environmental Fluid Mechanics (Springer).
  - Hydrological Sciences Journal (Taylor and Francis).
  - Hydrology (MDPI).
  - Journal of Hydrology (Elsevier).

- Remote Sensing (MDPI).
- River Research and Applications (Wiley).
- Water (MDPI).

- **Editorial Board and Guest Editor**
  - Member of the Editorial Board of Frontiers in Remote Sensing (2020 – to date).

- **List of Publications** (including citations from GoogleScholar - updated on 09/05/2022)**: h-index = 13**



International Journals:

1. Link, O. & **Pizarro, A.** *"Discussion of "Estimation of Exceedance Probability of Scour onBridges Using Reliability Principles""*, Journal of Hydrologic Engineering (ASCE) (accepted)
2. Paridad, P., **Pizarro, A.** et al. (2022) *"Estimation of soil moisture from UAS platforms using RGB and thermal imaging sensors in arid and semi-arid regions"*. ACTA Horticulture, 1335(42):339-348, https://doi.org/10.17660/ActaHortic.2022.1335.42
3. **Pizarro, A.** et al. (2022) *"Relative importance of parameters controlling scour at bridge piers using the new toolbox ScourAPP"*. Computers & Geosciences, 163(105117), https://doi.org/10.1016/j.cageo.2022.105117
4. Tubaldi, E., **Pizarro, A.** et al. (2022) *"Invited perspectives: Challenges and future directions in improving bridge flood resilience"*, Nat. Hazards Earth Syst. Sci., 22, 795–812, https://doi.org/10.5194/nhess-22-795-2022
5. Acharya, B. S., **Pizarro, A.** et al. (2021) *"Unmanned Aerial Vehicles in Hydrology and Water Management: Applications, Challenges, and Perspectives"*. Water Resources Research, 57(11), https://doi.org/10.1029/2021WR029925

6. Ljubičić, R., **Pizarro, A.** et al. (2021) *"A comparison of tools and techniques for stabilising unmanned aerial system (UAS) imagery for surface flow observations"*, Hydrol. Earth Syst. Sci., 25, 5105–5132, https://doi.org/10.5194/hess-25-5105-2021
7. Dal Sasso, S. F., **Pizarro, A.**, Manfreda, S. (2021) *"Recent Advancements and Perspectives in UAS-Based Image Velocimetry"*. Drones, 5(3), 81, https://doi.org/10.3390/drones5030081
8. Dal Sasso, **Pizarro, A.** et al. (2021) *"Increasing LSPIV performances by exploiting the seeding distribution index at different spatial scales"*. Journal of Hydrology, 598, 126438. https://doi.org/10.1016/j.jhydrol.2021.126438
9. **Pizarro, A.** et al. (2020) *"Identifying the optimal spatial distribution of tracers for optical sensing of stream surface flow"*. Hydrology and Earth System Sciences (HESS), https://doi.org/10.5194/hess-24-5173-2020
10. **Pizarro, A.**, Dal Sasso, S. F., Manfreda, S. (2020) *"Refining image-velocimetry performances for streamflow monitoring: Seeding metrics to errors minimisation"*. Hydrological Processes; 1–9. https://doi.org/10.1002/hyp.13919
11. Dal Sasso, S. F., **Pizarro, A.** et al. (2020) *"Metrics for the Quantification of Seeding Characteristics to Enhance Image Velocimetry Performance in Rivers"*. Remote Sensing, 12(11), 1789; https://doi.org/10.3390/rs12111789
12. Perks, M., **Pizarro, A.** et al. (2020) "*Towards harmonisation of image velocimetry techniques for river surface velocity observations".* Earth Syst. Sci. Data, 12, 1545–1559, https://doi.org/10.5194/essd-12-1545-2020
13. Manfreda, S., **Pizarro, A.** et al. (2020) "*Potential advantages of flow-area rating curves compared to classic stage-discharge-relations".* Journal of Hydrology, 124752, https://doi.org/10.1016/j.jhydrol.2020.124752
14. **Pizarro A.**, Manfreda, S., Tubaldi, E. (2020) *"The Science behind Scour at bridge Foundations: A Review"*. Water, 12(2), 374, https://doi.org/10.3390/w12020374
15. Pearce, S., **Pizarro, A.** et al. (2020) *"An Evaluation of Image Velocimetry Techniques under Low Flow Conditions and High Seeding Densities Using Unmanned Aerial Systems"*. Remote Sensing, 12(2), 232, https://doi.org/10.3390/rs12020232
16. Link, O., **Pizarro, A.** et al. (2020) *"Local Scour and Deposition at Bridge Piers during Floods"*. Journal of Hydraulic Engineering, 146(3), 04020003, https://doi.org/10.1061/(ASCE)HY.1943-7900.0001696
17. **Pizarro, A.** & Tubaldi, E. (2019). *"Quantification of modelling uncertainties in bridge scour risk assessment under multiple flood events"*. Geosciences, 9(10), 445, https://doi.org/10.3390/geosciences9100445
18. Gheybi, F., **Pizarro, A.** et al. (2019) *"Soil Moisture Monitoring in Iran by Implementing Satellite Data into the Root-Zone SMAR Model"* Hydrology, https://doi.org/10.3390/hydrology6020044
19. Manfreda, S., Link, O., **Pizarro, A.** (2018) *"A Theoretically Derived Probability Distribution of Scour Depth"*. Water 10.11 (2018): 1520, https://doi.org/10.3390/w10111520
20. Dal Sasso, S. F., **Pizarro, A.** et al. (2018) *"Exploring the optimal experimental setup for surface flow velocity measurements using PTV"*, Environmental Monitoring and Assessment, 190(8), 460; https://doi.org/10.1007/s10661-018-6848-3
21. **Pizarro, A.** et al. (2017) *"BRISENT: An entropy-based model for bridge-pier scour estimation under complex hydraulic scenarios"*. Water, 9(11), 889; https://doi.org/10.3390/w9110889
22. **Pizarro, A.** et al. (2017) *"Dimensionless Effective Flow Work for Estimation of Pier Scour Caused by Flood Waves"*. Journal of Hydraulic Engineering; https://doi.org/10.1061/(ASCE)HY.1943-7900.0001295

23. Link, O., **Pizarro, A.** et al. (2017) *"A model of bridge pier scour during flood waves"*. Journal of Hydraulic Research; https://doi.org/10.1080/00221686.2016.1252802

Book Chapters:

1. **Pizarro, A.** et al. *"Urban river management by innovative monitoring"*, in *Managing Urban Rivers: From planning to practice* edited by Victor R. Shinde (in press)
2. Strelnikova, D., **Pizarro, A.** et al. *"River flow monitoring with UAS"*, in *Remote Sensing of the Environment using Unmanned Aerial Systems (UAS)* edited by Salvatore Manfreda (in press)
3. Bertalan, L., **Pizarro, A.** et al. *"Monitoring of river channel dynamics by UAS"*, Remote Sensing of the Environment using Unmanned Aerial Systems (UAS) edited by Salvatore Manfreda (in press)
4. Manfreda, S., **Pizarro, A.** et al. (2019) *"New insights offered by UAS for river monitoring"*, in *Applications of Small Unmanned Aircraft Systems: Best Practices and Case Studies* edited by J. B. Sharma; https://doi.org/10.1201/9780429244117

Datasets:

1. **Pizarro, A.** et al. (2020) *"Data on spatial distribution of tracers for optical sensing of stream surface flow"*, https://doi.org/10.5281/zenodo.3761859

Codes:

1. **Pizarro, A.** et al. (2021) *"ScourAPP: A Toolbox for Local Scour and Deposition at Bridges during Floods"*, https://doi.org/10.17605/OSF.IO/VDB9N
2. **Pizarro, A.** et al. (2020) *"VISION: VIdeo StabilisatION using automatic features selection"*, https://doi.org/10.17605/OSF.IO/HBRF2
3. **Pizarro, A.** et al. (2020) *"Identifying the Optimal Spatial Distribution of Tracers for Optical Sensing of Stream Surface Flow"*, https://www.doi.org/10.17605/OSF.IO/8EGQW

Conferences:

1. Dal Sasso, S. F., **Pizarro, A.** et al. *"Techniche ottiche PTV e LSPIV per il monitoraggio fluviale: Una applicazione al fiume Basento"*, XXXVII Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Reggio Calabria, September, 2022.

2. Dal Sasso, S. F., **Pizarro, A.** et al. *"VISION: un software open source di stabilizzazione delle immagini da sapr per il monitoraggio idrologico dei fiumi"*, XXXVII Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Reggio Calabria, September, 2022.

3. Pizzolla, T., **Pizarro, A.** et al. *"La classificazione della copertura del suolo a supporto della stima del contenuto idrico del suolo da SAPR"*, XXXVII Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Reggio Calabria, September, 2022.

4. Dal Sasso, S., **Pizarro, A.** et al. *"The impact of a multi-criteria calibration on the performances of the DREAM model"*, EGU General Assembly Conference: EGU 2022.

5. **Pizarro, A.**, Dal Sasso, S. F., Manfreda, S. *"Image-velocimetry techniques under particle aggregation for streamflow monitoring: a numerical approach"*, EGU General Assembly Conference: EGU 2020.
6. Manfreda, S., **Pizarro, A.** et al. *"Use of Unmanned Aerial Systems for Hydrological Monitoring"*, EGU General Assembly Conference: EGU 2020.
7. Pearce, S., **Pizarro, A.** et al. *"An evaluation of image velocimetry techniques under low flow conditions and high seeding densities using Unmanned Aerial Systems"*, EGU General Assembly Conference: EGU 2020.
8. Dal Sasso, S. F., **Pizarro, A.**, Manfreda, S. *"On the characterisation of open-flow seeding conditions for image-velocimetry techniques using UASs"*, EGU General Assembly Conference: EGU 2020.
9. Paridad, P., **Pizarro, A.** et al. *"Estimation of soil moisture from UAS platforms using RGB and thermal imaging sensors in arid and semi-arid regions"*, IX International Symposium on Irrigation of Horticultural Crops (17 - 20 June, 2019, Matera, Italy).
10. **Pizarro, A.** & Manfreda, S. *"A Theoretically Derived Probability Distribution of Scour to evaluate bridge-pier vulnerability"*, EGU General Assembly Conference: EGU 2019 (07 - 12 April, Vienna, Austria).
11. Dal Sasso, S., **Pizarro, A.** et al. *"Accuracy of Large-Scale Particle Image Velocimetry (LSPIV) techniques applied on low seeding density flows"*, EGU General Assembly Conference: EGU 2019 (07 - 12 April, Vienna, Austria).
12. **Pizarro, A.** et al. *"An integrated stochastic model of the river discharge process with emphasis on floods and bridge scour"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
13. **Pizarro, A.** et al. *"Assessment of different scour models on the Markovian scour increment framework"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
14. **Pizarro, A.** et al. *"Discharge Uncertainty on Bridge Scour Process"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
15. Laguna, E., **Pizarro, A.** et al. *"Natural Risk Mitigation and Cultural Heritage Protection, preliminary outcomes of the ELARCH project"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
16. Nezi, M., **Pizarro, A.** et al. *"Stochastic investigation of the streamflow process adjusted for human impact"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
17. Samela, C., **Pizarro, A.** et al. *"Geomorphic approaches for flood risk mapping"*, EGU General Assembly Conference: EGU 2018 (08 - 13 April, Vienna, Austria).
18. **Pizarro, A.** et al. *"Considerations on Bridge-pier design: Past versus Future practices"*, Anidis 2017 – XVII Conference (17 – 21 September, Pistoia, Italy).
19. Dal Sasso, S., **Pizarro, A.** et al. *"Monitoring surface flow velocity using natural tracers and noncontact techniques"*, IAHS Scientific Assembly 2017 (10 – 14 July, Port Elizabeth, South Africa).
20. **Pizarro, A.** et al. *"Informational Entropy and Bridge Scour Estimation under Complex Hydraulic Scenarios"*, EGU General Assembly Conference: EGU 2017 (23 - 28 April, Vienna, Austria).
21. Dal Sasso, S., **Pizarro, A.** et al. *"Testing different tracers for stream flow monitoring with UAS"*, EGU General Assembly Conference: EGU 2017 (23 - 28 April, Vienna, Austria).
22. **Pizarro, A.**, Manfreda, S., Link, O. *"Socavación de puentes frente a diferentes condiciones hidráulicas"*, XII International conference on structural repair and rehabilitation: CINPAR 2016 (26 - 29 October, Porto, Portugal).

23. Link, O., **Pizarro, A.** et al. *"A model for scour around bridge piers caused by flood waves"*, 8th International Conference on Scour and Erosion: ICSE 2016 (12 - 15 September, Oxford, Uk).

24. **Pizarro, A.** & Link, O. *"Intensidad de flujo generalizada: Un parámetro adimensional que explica la socavación local bajo condiciones hidráulicas impermanentes"*, XXII Congreso de Ingeniería Hidráulica: SOCHID 2015 (21 - 23 October, Santiago de Chile, Chile).