

Prof. İSMAİL AYDIN

Personal Information

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International Researcher IDs

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ORCID: 0000-0002-2197-6171

Publons / Web Of Science ResearcherID: D-1345-2010

ScopusID: 56235093000

Yoksis Researcher ID: 6985

Education Information

Doctorate, Tohoku University, Faculty Of Engineering, Civil Engineering Department, Japan 1984 - 1987

Postgraduate, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, Turkey 1980 - 1983

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, Turkey 1975 - 1980

Dissertations

Doctorate, Computation and analysis of unsteady turbulent flow on flat bottom and over rigid ripples, Tohoku University, Civil Engineering Department, 1987

Postgraduate, On large scale flow structure detection of a turbulent jet, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 1983

Research Areas

Civil Engineering, Hydraulic, Hydromechanics, Engineering and Technology

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Civil Engineering, 2011 - Continues

Courses

DESIGN OF HYDRAULIC STRUCTURES, Undergraduate, 2018 - 2019

Advising Theses

- AYDIN İ., AUTOMATION OF SPILLWAY GATE OPERATIONS BASED ON RESERVOIR WATER LEVEL MONITORING, Postgraduate, M.KHORAM(Student), 2022
- AYDIN İ., Parametric analysis of two-layer shallow flow modelling for landslide and water waves in dam reservoirs, Postgraduate, M.MERİÇ(Student), 2022
- AYDIN İ., WATER SURFACE PROFILE COMPUTATION AROUND SQUARE BLOCKS BY IMAGINARY REPRESENTATION OF THE OBSTRUCTIONS IN THE SHALLOW WATER EQUATIONS, Postgraduate, S.OMAR(Student), 2021
- AYDIN İ., Numerical solution to kinematic wave equation for surface runoff analysis using satellite based DEM data, Postgraduate, H.Hüseyin(Student), 2020
- Aydın İ., Feasibility of pumped-storage hydraulic systems based on hourly variation of electricity prices, Postgraduate, E.BARBAROS(Student), 2019
- AYDIN İ., Assessment of sensitivity of depth integrated solutions to longitudinal discontinuities on the channel bed, Postgraduate, R.Mohammadi(Student), 2019
- AYDIN İ., PERFORMANCE OF FLO-2D SOFTWARE ON FLOOD INUNDATION ANALYSIS, Postgraduate, A.NAZIM(Student), 2016
- AYDIN İ., Flow measurement in open channels by combined use of free surface PIV and CFD, Doctorate, S.GHARAHJEH(Student), 2016
- AYDIN İ., Computer code development for numerical solution of depth integrated shallow water equations to study flood waves, Postgraduate, B.NİLAY(Student), 2015
- AYDIN İ., Depth integrated equations applied to longitudinal discontinuities on the channel bed, Postgraduate, M.RAZMAND(Student), 2015
- AYDIN İ., Impact assessment of water jets from flip buckets / , Postgraduate, C.YAVUZ(Student), 2014
- AYDIN İ., KÖKEN M., Numerical investigation of hydraulic characteristics of Laleli dam spillway and comparison with physical model study, Postgraduate, E.USTA(Student), 2014
- AYDIN İ., Validation of depth-averaged mixing length turbulence model for uniform channel flows/, Postgraduate, Ç.HASAN(Student), 2014
- AYDIN İ., KÖKEN M., Prediction of downpull on high head gates using computational fluid dynamics, Postgraduate, M.AKIŞ(Student), 2014
- AYDIN İ., Computational modelling of free surface flow in intake structures using flow 3D software, Postgraduate, A.AYBAR(Student), 2012
- AYDIN İ., ALTAN SAKARYA A. B., Motivators and barriers for green building construction market in Turkey, Postgraduate, H.Gündoğan(Student), 2012
- AYDIN İ., Use of air chambers against waterhammer in penstocks, Postgraduate, B.ADAL(Student), 2011
- PARLAKTUNA M., AYDIN İ., Modeling of Newtonian fluids and cuttings transport analysis in high inclination wellbores with pipe rotation, Doctorate, M.SORGUN(Student), 2010
- AYDIN İ., Utilization of cfd tools in the design process of a Francis turbine, Postgraduate, G.OKYAY(Student), 2010
- ALTAN SAKARYA A. B., AYDIN İ., Experimental investigation on sharp-crested rectangular weirs, Postgraduate, H.ÇİĞDEM(Student), 2009
- AYDIN İ., Determination of computational domain boundaries for viscous flow around two dimensional bodies, Postgraduate, M.MAZHAR(Student), 2006
- AYDIN İ., Momentum exchange in coaxial jet flows, Postgraduate, E.ATİLLA(Student), 2005
- AYDIN İ., Simulation of surface waves generated by a rapid rise of a block at the sea bottom, Postgraduate, N.ŞENOL(Student), 2005
- AYDIN İ., Generation of surface waves due to sudden movements at the sea bottom, Postgraduate, Ö.ULAŞ(Student), 2004
- AYDIN İ., Development and validation of two-dimensional depth-averaged free surface flow solver, Postgraduate, B.YILMAZ(Student), 2003
- AYDIN İ., Development and validation of two-dimensional depth-averaged free surface flow solver, Postgraduate, B.Yılmaz(Student), 2003
- GÖĞÜŞ M., AYDIN İ., Water jet pumps with multiple nozzles., Postgraduate, E.GÜRSOY(Student), 2002
- AYDIN İ., Roughness coefficient for compound channels with macro roughness elements., Postgraduate,

M.USTAÖMER(Student), 2002

AYDIN İ., Pressure distribution and downpull force on vertical gate lips, Postgraduate, İ.TONGUÇ(Student), 2002

AYDIN İ., Air flowrate measurement in the ventilation shaft behind a power intake gate model, Postgraduate, O.DÜNDAR(Student), 2002

AYDIN İ., Air flowrate measurements in the ventilation shaft behind a power intake gate model, Postgraduate, O.Dündar(Student), 2002

AYDIN İ., Overflow through spacings around leaf gates, Postgraduate, F.GÜREŞÇİ(Student), 2001

AYDIN İ., Discharge coefficient for slit weirs, Postgraduate, O.HINÇAL(Student), 2000

AYDIN İ., Investigation of pier length of an ogee-crested overflow spillway, Postgraduate, V.Yüksel(Student), 1995

AYDIN İ., Investigation of pier length of an agee-crested overflow spillway, Postgraduate, V.YÜKSEL(Student), 1995

AYDIN İ., Comparison of K-E and stress models of turbulence in unsteady flows, Postgraduate, A.GÖKÇE(Student), 1994

AYDIN İ., Computation of flow over vertically curved channels, Postgraduate, M.HAKAN(Student), 1994

AYDIN İ., Study of tube length effect in dynamic pressure measurement, Postgraduate, M.İNAN(Student), 1993

AYDIN İ., Study of tube length effect in dynamic pressure measurement, Postgraduate, M.İnan(Student), 1993

AYDIN İ., Numerical study of boundary conditions for flow fields with porous boundaries, Postgraduate, S.KAYA(Student), 1992

AYDIN İ., Experimental study of boundary conditions for flow fields with porous boundaries, Postgraduate, G.BAŞOĞLU(Student), 1992

AYDIN İ., Experimental study of boundary conditions for flow fields with porous boundaries, Postgraduate, G.Basoglu(Student), 1992

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Finite volume analysis of dam breaking subjected to earthquake accelerations**
Mosaddeghi F., Köken M., Aydın I.
Journal of Hydraulic Research, vol.61, no.6, pp.854-865, 2023 (SCI-Expanded)
- II. **An iterative hydraulic design methodology based on numerical modeling for piano key weirs**
Köken M., Aydın İ., Ademoglu S.
JOURNAL OF HYDRO-ENVIRONMENT RESEARCH, vol.40, pp.131-141, 2022 (SCI-Expanded)
- III. **Feasibility of pumped storage hydropower with existing pricing policy in Turkey**
Barbaros E., AYDIN İ., Celebioglu K.
RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol.136, 2021 (SCI-Expanded)
- IV. **New Theoretical solution of stage-discharge relationship for slit weirs**
FERRO V., AYDIN İ.
Journal of Irrigation and Drainage Engineering, vol.144, no.3, 2018 (SCI-Expanded)
- V. **Testing the outflow theory of Malcherek by slit weir data**
FERRO V., AYDIN İ.
FLOW MEASUREMENT AND INSTRUMENTATION, vol.59, pp.114-117, 2018 (SCI-Expanded)
- VI. **Sığ Akım Denklemlerinin Hidrolikte Kullanılması Üzerine Değerlendirmeler**
İşcen B. N., Öktem N., Yılmaz B., Aydın İ.
Teknik Dergi, vol.28, pp.7747-7764, 2017 (SCI-Expanded)
- VII. **Application of computational fluid dynamics to predict hydrodynamic downpull on high head gates**
Köken M., Aydın İ., Şahin A.
ENGINEERING COMPUTATIONS, vol.34, pp.1191-1203, 2017 (SCI-Expanded)
- VIII. **On the Use of Shallow Water Equations in Hydraulics**
İşcen B. N., ÖKTEM N., Yılmaz B., AYDIN İ.
TEKNIK DERGI, vol.28, no.1, pp.7747-7764, 2017 (SCI-Expanded)
- IX. **Application of video imagery techniques for low cost measurement of water surface velocity in open channels**
GHARAJEH S., AYDIN İ.

FLOW MEASUREMENT AND INSTRUMENTATION, vol.51, pp.79-94, 2016 (SCI-Expanded)

- X. **Numerical Simulation and Formulation of Wave Run-Up on Dam Face due to Ground Oscillations Using Major Earthquake Acceleration Records**
DEMİREL E., AYDIN İ.
Journal Of Engineering Mechanics-Asce, vol.142, pp.6016001, 2016 (SCI-Expanded)
- XI. **Weir velocity formulation for sharp-crested rectangular weirs**
GHARAHJEH S., AYDIN İ., Altan-Sakarya A. B.
FLOW MEASUREMENT AND INSTRUMENTATION, vol.41, pp.50-56, 2015 (SCI-Expanded)
- XII. **Mathematical Modeling of Turbulent Flows of Newtonian Fluids in a Concentric Annulus with Pipe Rotation**
SORGUN M., AYDIN İ., ÖZBAYOĞLU E., SCHUBERT J. J.
ENERGY SOURCES PART A-RECOVERY UTILIZATION AND ENVIRONMENTAL EFFECTS, vol.34, pp.540-548, 2012 (SCI-Expanded)
- XIII. **Hydrodynamic Modeling of Dam-Reservoir Response during Earthquakes**
AYDIN İ., Demirel E.
Journal of Engineering Mechanics, vol.138, no.2, pp.164-174, 2011 (SCI-Expanded)
- XIV. **Friction factors for hydraulic calculations considering presence of cuttings and pipe rotation in horizontal/highly-inclined wellbores**
Sorgun M., AYDIN İ., Ozbayoglu M. E.
JOURNAL OF PETROLEUM SCIENCE AND ENGINEERING, vol.78, no.2, pp.407-414, 2011 (SCI-Expanded)
- XV. **Discharge formula for rectangular sharp-crested weirs**
AYDIN İ., Altan-Sakarya A. B., ŞİŞMAN Ç.
FLOW MEASUREMENT AND INSTRUMENTATION, vol.22, no.2, pp.144-151, 2011 (SCI-Expanded)
- XVI. **Global volume conservation in unsteady free surface flows with energy absorbing far-end boundaries**
Demirel E., AYDIN İ.
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, vol.64, no.6, pp.689-708, 2010 (SCI-Expanded)
- XVII. **Modeling and Experimental Study of Newtonian Fluid Flow in Annulus**
SORGUN M., Ozbayoglu M. E., AYDIN İ.
JOURNAL OF ENERGY RESOURCES TECHNOLOGY-TRANSACTIONS OF THE ASME, vol.132, no.3, 2010 (SCI-Expanded)
- XVIII. **Nonlinear mixing length model for prediction of secondary currents in uniform channel flows**
AYDIN İ.
Journal of Hydraulic Engineering, vol.135, no.2, pp.146-153, 2009 (SCI-Expanded)
- XIX. **Performance of slit weir**
AYDIN İ., Altan-Sakarya A. B., Ger A. M.
Journal of Hydraulic Engineering, vol.132, no.9, pp.987-989, 2006 (SCI-Expanded)
- XX. **Prediction of downpull on closing high head gates**
Aydin I., Telci I. T., DÜNDAR O.
JOURNAL OF HYDRAULIC RESEARCH, vol.44, no.6, pp.822-831, 2006 (SCI-Expanded)
- XXI. **Combined-free flow over weirs and below gates**
Negm A., Al-Brahim A., Alhamid A., Sakarya B., Aydin I., Ger A.
JOURNAL OF HYDRAULIC RESEARCH, vol.42, no.5, pp.557-559, 2004 (SCI-Expanded)
- XXII. **Measurement of small discharges in open channels by Slit Weir**
AYDIN İ., Ger A. M., HINCAL O.
Journal of Hydraulic Engineering, vol.128, no.2, pp.234-237, 2002 (SCI-Expanded)
- XXIII. **Air demand behind high head gates during emergency closure**
Aydin I.
JOURNAL OF HYDRAULIC RESEARCH, vol.40, no.1, pp.83-93, 2002 (SCI-Expanded)
- XXIV. **Evaluation of fluctuating pressures measured with connection tubes**
AYDIN İ.

Journal of Hydraulic Engineering, vol.124, no.4, pp.413-418, 1998 (SCI-Expanded)

XXV. **An application of k-e model to oscillatory boundary Layers**

AYDIN İ., SHUTO N.

Coastal Engineering Journal, vol.30, pp.11-24, 1988 (SCI-Expanded)

Articles Published in Other Journals

- I. **Deducing the stage-discharge relationship for contracted weirs by the outflow theory of Malcherek Ferro V., AYDIN İ.**

JOURNAL OF AGRICULTURAL ENGINEERING, vol.50, no.2, pp.80-87, 2019 (ESCI)

- II. **Head loss estimation for water jets from flip buckets**

YAVUZ C., DİNÇER A. E., AYDIN İ.

The International Journal of Engineering And Science, vol.5, pp.48-57, 2016 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **EXPERIMENTAL INVESTIGATION OF LANDSLIDE GENERATED WAVES IN A LABORATORY TEST SET-UP**

KARAYAMA E. T., AYDIN İ., DEMİREL E., Kürümüş A. T., Barough R. M.

14th INTERNATIONAL CONFERENCE ON HYDROSCIENCE AND ENGINEERING, İzmir, Turkey, 26 May 2022

- II. **NUMERICAL SIMULATION of LANDSLIDE GENERATED SURFACE WAVES USING OVERSET GRID METHOD**

AYDIN İ., DEMİREL E., Barough R. M., Kürümüş A. T., KARAYAMA E. T.

14th INTERNATIONAL CONFERENCE ON HYDROSCIENCE AND ENGINEERING, İzmir, Turkey, 26 May 2022

- III. **Artvin bottom outlet aeration: an innovative arrangement**

Comelli M., AYDIN İ., Nurhat E., Chambas P.

HYDRO 2018, 15 - 17 October 2018

- IV. **Flow resistance in conveyance channels**

AYDIN İ.

13th int. Congress on Advances in Civil Engineering, 12 - 14 September 2018

- V. **Prospects of Large Scale Energy Storage in Turkey- Pumped Hydro and Electrochemical Energy Storage**

ÖZTÜRK T., AYDIN İ., AYDINOL M. K., PATAT Ş.

14TH INTERNATIONAL CONFERENCE ON ENERGY STORAGE, 25 - 28 April 2018

- VI. **WALL FUNCTIONS FOR BOUNDARY ROUGHNESS PREDICTION IN UNIFORM CHANNEL FLOWS**

AYDIN İ.

IAHR 2017 World Congress, 13 - 18 August 2017

- VII. **Experimental and numerical investigation of piano key weirs.**

KÖKEN M., AYDIN İ., HASPOLAT E., ŞAHİN A. N.

37th IAHR Congress, Kuala-Lumpur, Malaysia, 13 - 18 August 2017

- VIII. **NUMERICAL INVESTIGATION OF A COMBINED SYSTEM OF PIANO KEY WEIRS AND STEPPED SPILLWAY USING**

KÖKEN M., AYDIN İ.

17th Flow 3d European User's Conference, Barselona, Spain, 5 - 07 June 2017

- IX. **Roughness and discharge estimation in open channels by free surface velocity measurement**

GHARAJEH S., AYDIN İ.

12th International Congress on Advances in Civil Engineering, İstanbul, Turkey, 21 - 23 September 2016

- X. **Stream gauging by combined use of surface PTV and CFD techniques in channel flows**

GHARAJEH S., AYDIN İ.

36 th world congree of IAHR, 28 June - 03 July 2015, vol.1, pp.1-7

XI. IMPACT ASSESSMENT OF WATER JETS FROM FLIP BUCKETS

Yavuz C., AYDIN İ.

36th IAHR World Congress, Delft, Netherlands, 28 June - 03 July 2015, pp.3013-3022

XII. Experimental Investigation of Flow Conditions over Cambasi Dam Spillway

ALTAN SAKARYA A. B., AYDIN İ., GÖĞÜŞ M., KÖKEN M.

35th World Congress of the International-Association-for-Hydro-Environment-Engineering-and-Research (IAHR), Chengdu, China, 8 - 13 September 2013, pp.5748-5755

XIII. Experimental and Computational Investigation of Vortex Formation in a Vertical Intake Structure

AYDIN İ., KÖKEN M., Aybar A.

35th World Congress of the International-Association-for-Hydro-Environment-Engineering-and-Research (IAHR), Chengdu, China, 8 - 13 September 2013, pp.1084-1092

XIV. MODELING OF NEWTONIAN FLUIDS IN ANNULAR GEOMETRIES WITH INNER PIPE ROTATION

Sorgun M., Schubert J. J., Aydin I., Ozbayoglu M. E.

3rd Joint US-European Fluids Engineering Division Summer Meeting, Montreal, Canada, 1 - 05 August 2010, pp.1453-1461

XV. Yamula Barajı ve HES Hidrolik Model Çalışmaları

YILMAZ B., ALTAN SAKARYA A. B., GÖĞÜŞ M., ÖNDER H., AYDIN İ., TOKYAY N.

II. Ulusal Su Mühendisliği Sempozyumu, İzmir, Turkey, 21 - 24 September 2005, pp.281-291

Activities in Scientific Journals

Teknik Dergi, Committee Member, 2014 - Continues

Metrics

Publication: 42

Citation (WoS): 274

Citation (Scopus): 267

H-Index (WoS): 9

H-Index (Scopus): 8

Awards

Aydin İ., Outstanding Reviewer, American Society Of Civil Engineers, March 2019

Non Academic Experience

METU

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