CURRICULUM VITAE



David HURTHER

Born September 7th 1972 in Strasbourg, France Research Scientist (First Grade) at CNRS Affiliated at LEGI, UMR 5519, Grenoble, France Nationality : French Civil status : married (2 children) Email: <u>david.hurther@legi.cnrs.fr</u>

University Education

2014 HDR, Environmental Fluid Mechanics, doctoral school IMEP2, University of Grenoble,

- 2001 **PhD**, Environmental & Civil Engineering (River hydrodynamics & Instrumentation). *Swiss Federal Institute of Technology, Lausanne (EPFL)*. Switzerland. Directors: Prof. W.-H. Graf, Prof. U. Lemmin
- 1995 Master of Science in Mechanical Engineering. Louis Pasteur University of Strasbourg. France.
- 1995 **Master of Engineering** in Electrical Engineering (digital signal processing and optoelectronics). *University of Applied Sciences, Offenburg,* Germany.

Professional Career

- Jan. 2003 **Research Scientist** at CNRS (grade II and I) in the *Laboratory of Geophysical and Industrial Flows (LEGI), UMR 5519*, Grenoble, France
- Dec. 2001 Annual **Post-doctoral Scholar** at *Woods Hole Oceanographic Institution*, Massachusetts, to Dec. 2002 USA.

Oct. 1997 **Research and Teaching Assistant**. *Swiss Federal Institute of Technology, Lausanne (EPFL)* to Oct 2001 Switzerland.

March 1996French National Military Service as detached Scientist. Swiss Federal Institute of Technology,
Lausanne (EPFL). Switzerland.

Distinctions and Awards

John F. Kennedy award (first price), 2001, IAHR biannual congress, Beijing, China.

Annual post-doctoral scholar award in ocean science and engineering, 2001, *Woods Hole Oceanographic Institution*, Massachusetts, USA

Scientific Animation

Associate Editor at American Geophysical Union (AGU) for the journal Water Resources Research. (2007-2014)

Associate Editor at the Int. Assoc. of Hydraulic Res. (IAHR), Journal of Hydraulic Research. (2011-2013)

Member of the Board (elected as rank B representative) of the Laboratory of Geophysical and Industrial Flows, LEGI (Jan. 2008 to Jan. 2014)

Member of the scientific committee of River Flow. International Conference on Fluvial Hydraulics.

Member of the scientific committee & chairman at ISUD, Int. Symp.. on Ultrasound Doppler Methods.

Member of the scientific, local organizing committees & chairman at CFM, Congrès Français de Mécanique.

Teaching & Education duties

Since Sept. 2010, head of the graduate course Flow Measurement Science, Joseph Fourier University of Grenoble.

Member since 2010 of the steering committee of the international master in **Environmental Fluid Mechanics**. Joseph Fourier University of Grenoble. <u>http://www-meca.ujf-grenoble.fr/master-MEI/EFM/</u>

Keynote & Invited Lectures

- 1. **Hurther D.** (2014).Underwater acoustic scattering and its application to sediment transport physics in coastal and river flows. <u>Keynote Lecture</u> at the 9th Intern. Symposium on Ultrasonic Doppler Methods. University of Strasbourg, France.
- 2. Hurther D. (2014). High-Resolution Acoustic flow instrumentation within Hydralab IV-WISE project. Invited presentation at the closing Hydralab IV conference. Lisbon, Portugal.
- 3. Thorne P.D. and **Hurther D.** (2013). High-Resolution Acoustic Concentration and Velocity Profiling. <u>Keynote</u> <u>lecture</u> at the *Intern. Workshop on acoustic and seismic monitoring of bedload and mass movements.* ETH Zürich, Switzerland.
- 4. **Hurther D.** (2010). Diffusion acoustique de particules en suspension et application à l'étude de processus hydro-sédimentaires. Invited lecture at the annual workshop of the GDR TRANSNAT. EDF-LNH, Chatou, France.
- 5. **Hurther D.** (2009). Measurement of near-bed turbulence and sediment dynamics using acoustic techniques. Invited lecture at the National TELFORD Institute workshop on *Advances in Flow, Density & Sediment Measurement Techniques in the Laboratory & the Field*. University of Dundee. United Kingdom.

PhD & Habilitation committees

Member of 13 PhD committees between 2005 and 2015:

- -S. Fischer (2006): Univ. Louis Pasteur, Strasbourg, France, Examinator.
- -M. Bricault (2006): Inst. Nation. Polytechnique de Grenoble, France, Co-director.
- -A. Hauet (2007): University Joseph Fourier, Grenoble, Examinator.
- -I. Albayrak (2008): EPFL, Lausanne, Switzerland, Reviewer.
- -F. Abda (2009): Univ. Louis Pasteur, Strasbourg, France, Examinator.
- -E. Florens (2010): Institute of Fluid Mechanics, Toulouse, France, Examinator.
- -S.A. Moore (2011): University of Grenoble, France, Director.
- -F.X. Chassagneux (2012): University of Grenoble, France, Director.
- -T. Geay (2013): University of Grenoble France, Examinator.
- -N. Hémmerlé (2014): Ecole Centrale de Nantes, Reviewer.
- -T. Revil-Baudard (2014): University of Grenoble, France, Examinator.
- -S. Naqshband (2014): University of Twente, The Netherlands, Opponent.
- -M. Rouzes (2015): Insitute of Fluid Mechanics, Toulouse, France, Reviewer.

Member of one HDR committee (N. Sénéchal, University of Bordeaux, 2011), Reviewer.

Collective responsabilities

Reviewer in the following international research journals:

Journal of Fluid Mechanics, Experiments in Fluids, Journal of Geophysical Research, Coastal Engineering, Continental Shelf Research, Journal of Hydraulic Engineering, Journal of Coastal Research, Acta Geophysica, Comptes Rendus de l'Académie des Sciences.

In charge of LEGI seminars (between 2006 à 2010)

Patent

European Patent n°FR0202187 « Ultrasonic velocity measurement process and system for liquids in pipes and channels ». University Louis Pasteur of Strasbourg, inventors : O. Scrivener, **D. Hurther**, S. Fischer, B. Schwaller, P. Schmitt.

Publications in rank A journals

- 1. Revil-Baudard, T., Chauchat, J., **Hurther, D.** and Barraud, P.-A. (2015). Investigation of sheet-flow processes based on novel acoustic high-resolution velocity and concentration measurements. *Journal of Fluid Mechanics*. In press.
- Chassagneux, F. X., and Hurther D. (2014), Wave bottom boundary layer processes below irregular surfzone breaking waves with light-weight sheet flow particle transport, *J. Geophys. Res. Oceans*, 119, 1668-1690, doi: <u>10.1002/2013JC009338</u>.

- Naqshband S, Ribberink, J. S, Hurther D., Barraud, P.A., and Hulscher, S.J.M.H. (2014). Experimental evidence for turbulent sediment flux constituting a large portion of total sediment flux along migrating sand dunes. *Geophysical Research Letters*. doi: 10.1002/2014GL062322.
- 4. Thorne, P. D., and **Hurther, D.** (2014). An overview on the use of backscattered sound for measuring suspended particle size and concentration profiles in non-cohesive inorganic sediment transport studies. *Continental Shelf Research*, 73, 97–118.
- Naqshband S, Ribberink, J. S, Hurther D. and Hulscher, S.J.M.H. (2014). Bed load and suspended load contributions to migrating sand dunes in equilibrium. *J. Geophys. Res. Earth Surface*, 119, 1043-1063, doi: 10.1002/2013JF003043.
- Moore, S. A., Le Coz, J., Hurther, D., & Paquier, A. (2013). Using multi-frequency acoustic attenuation to monitor grain size and concentration of suspended sediment in rivers. *Journal of the Acoustical Society of America*, 133(4), 1959–1970.
- 7. Moore, S. A., Le Coz, J., **Hurther, D.** and Paquier, A. (2012) On the application of horizontal ADCPs to suspended sediment transport surveys in rivers. *Continental Shelf Research, 46, 50-63.* doi:10.1016/j.csr.2011.10.013.
- 8. **Hurther, D.**, and Thorne, P. D. (2011). Suspension and near-bed load sediment transport processes above a migrating, sand-rippled bed under shoaling waves. *Journal of Geophysical Research* C: Oceans, 116, 07001.
- 9. Sottolichio, A., **Hurther, D.**, Gratiot, N., and Bretel, P. (2011). Acoustic turbulence measurements of near-bed suspended sediment dynamics in highly turbid waters of a macrotidal estuary. *Continental Shelf Research*, 31, 36-49.
- 10. Thorne, P. D., **Hurther, D.**, and Moate, B. (2011). Acoustic inversions for measuring boundary layer suspended sediment processes. *Journal of the Acoustical Society of America*, 130(3), 1188–1200.
- 11.Mignot, E., **Hurther, D.**, and Barthelemy, E. (2011). Discussion of "Double-averaging turbulence characteristics in flows over a gravel bed". *Journal of Hydraulic Research*, 49(5), 703–705.
- 12.Hurther, D., Thorne, P. D., Bricault M., Lemmin U. and Barnoud, J M., (2011). A multi-frequency Acoustic Concentration and Velocity Profiler for boundary layer measurements of fine-scale flow and sediment transport processes. *Coastal Engineering*, 58, 594–605.
- 13.Guizien, K., Charles, F., **Hurther, D.** and Michallet, H, (2010). Spatial redistribution of Ditrupa arietina (soft bottom Mediterranean epifauna) during a moderate swell event. *Continental Shelf Research* 30, 239–251.
- 14.Mignot, E., **Hurther, D.**, Chassagneux, F-X. and Barnoud, J-M, (2009). A field study of the ripple vortex shedding process in the shoaling zone of a macro-tidal sandy beach. *J. Coastal Res.*, SI 56, 1776–1780.
- 15.Mignot, E., **Hurther, D.**, Barthélemy E., (2009). On the structure of shear stress and Turbulent Kinetic Energy (TKE) flux across the roughness layer of a gravel-bed channel flow. *Journal of Fluid Mechanics*, 638, 423-452.
- 16.Mignot E., Barthélemy E. and **Hurther D.**, (2009). Double-averaging analysis and local flow characterization of near bed turbulence in gravel-bed channel flows. *Journal of Fluid Mechanics* 618, 279-303.
- 17.Mignot E., Barthélemy E. and **Hurther D.**, (2008). Turbulent kinetic energy budget in a gravel-bed channel flow. *Acta Geophysica*, 56(3), 603-613.
- Hurther D, and Lemmin U, (2008). Improved turbulence profiling with field adapted Acoustic Doppler Velocimeters using a bi-frequency Doppler noise suppression method. J. of Atmos. and Oceanic Technol. 25 (2), 452-463.
- 19.Douroudian B., **Hurther D.** and Lemmin U., (2007). A discussion of turbulence measurements with acoustic Doppler velocimeters. ASCE-*J. Hydraulic Eng.* 133: 1286.
- 20.**Hurther D.**, Michallet H and Gondran, X., (2007). Turbulent measurements in the surf zone suspension. *Journal of Coastal Research, SI50, 297-301.*
- Hurther D., Lemmin U. and Terray E. A., (2007). Turbulent transport in the outer region of rough wall openchannel flows: the contribution of Large Coherent Shear Stress Structures (LC3S). *Journal of Fluid Mechanics* 574, 465-493.

- 22. **Hurther D.**, Terray E. A. and Lemmin U., (2004). Dynamics of Shear layers induced by hairpin packets in shallow free-surface flows: implications for gas transfer. In: *Shallow Flows*, W. Uijttewaal and G. H. Jirka (Eds.), Balkema, Amsterdam.
- 23. Hurther D. and Lemmin U., (2003). Turbulent particle and momentum flux statistics in suspension flow. *Water Resources Research*, 39, 1139, doi:10.1029/2001WR001113, 5.
- 24. **Hurther D.** and Lemmin U., (2001). A discussion of Equilibrium near bed concentration of suspended sediment. *J. Hydraulic Eng.* 127(5), 333-436.
- 25. **Hurther D.** and Lemmin U., (2001). A correction method for turbulence measurements with a 3D acoustic Doppler velocity profiler. *J. Atmos. Oceanic Technol.* 18(3), 446-458.
- 26. **Hurther D.** and Lemmin U., (2000). Shear stress statistics and wall similarity analysis in turbulent boundary layers using a high resolution 3D ADVP. *IEEE J. of Oceanic Engineering* 25(4): 446-457.
- 27. Hurther D. and Lemmin U., (1998). A constant-beam-width transducer for 3D acoustic Doppler profile measurements in open-channel flow. *Meas. Sci. Technol.* 9(10): 1706-1714.

Reviewed articles in proceedings of Int. Conferences

More than 40 reviewed proceeding articles between 1998 and 2014, presented at IAHR, ICCE, Coastal Sediments, Coastal Dynamics, River Flows, RCEM, AGU Fall Meeting, RCEM, ECUA, UAM, INTERCOH.