COLLEGE OF ENGINEERING

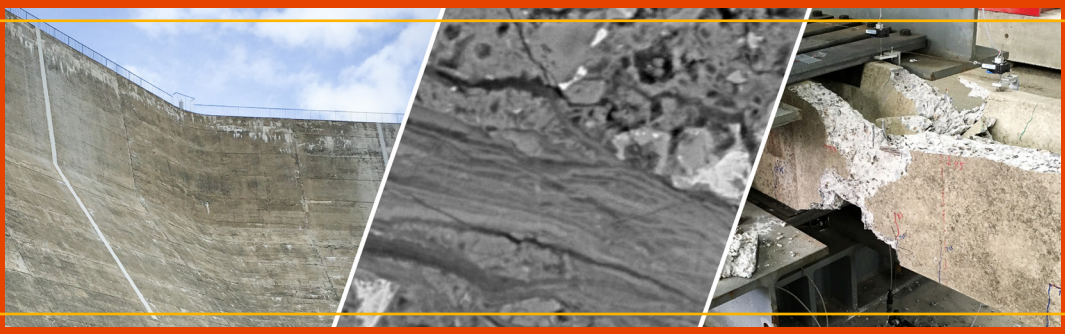
School of Civil and Construction Engineering

SERVICE-LIFE PREDICTION OF CONCRETE

3RD MEETING: THE CORVALLIS WORKSHOPS

In association with Cement and Concrete Research

July 16-19, 2017



Oregon State University

SUNDAY, JULY 16

CH2M Hill Alumni Center

17:00-19:00	Opening Reception

MONDAY, JULY 17 (MORNING)

CH2M Hill Alumni Center

7:30	Registration and Continental Breakfast
8:15	Welcome, Opening Remarks and Introductions Jason H. Ideker
8:30	**Session 1: Service-Life Prediction Tools** Session Chair: Kimberley E. Kurtis
25 min	***Using Models to Predict the Service-life Expectancy of Concrete Structures,*** Jacques Marchand, SIMCO
25 min	***A Real-World Perspective about Today's Practice and the Future of 100+ year Service Life Requirements,*** Oscar Antommattei, Kiewit
25 min	***Forecasting the Time to Corrosion of Reinforced Concrete Structures,*** Ueli Angst, ETH Zurich
15 min	*Discussion*
10:00	Coffee Break

10:30	**Session 3 Service-Life Prediction: Design Implications** Session Chair: Karen L. Scrivener
15 min	***Getting Back to Engineering: Advancing Concrete Mixtures for Performance***, Gina Ahlstrom, FHWA
25 min	***Performance-based Specifications and Control of Concrete Durability***, Hans Beushausen University of Cape Town
40 min	***Engineering and Sustainability Limit States for Reinforced Concrete Structures and Multi-Physics and Multi-Scale Modeling of Chloride Induced Reinforcement Corrosion***, Mette Geiker, Norwegian University of Technology and Science and Alex Michel, Technical University of Denmark
15 min	*Discussion*

POSTER PITCHES

Toward a Mixture Design Methodology for Internally Cured Concrete that Considers Filling Specific Pore Sizes Caused by Self-desiccation, Luca Montanari, Oregon State University

In-situ Corrosion Damage Characteristics of Fiber-reinforced Cementitious Composites Using X-ray Micro-computed Tomography, Wilson Nguyen, Jacob F. Duncan, Paulo J.M. Monteiro and Claudia P. Ostertag, UC Berkeley

12:15	Lunch

MONDAY, JULY 17 (AFTERNOON)

CH2M Hill Alumni Center

13:15 **Session 2: Experimental Data for Service-Life Prediction Tools**

Session Chair: Michael D.A. Thomas

25 min ***Concrete Mixtures do not have a Service Life; Concrete Structures have a Service Life,*** Doug Hooton, University of Toronto

25 min ***Durability Perspectives for Future Cements and use of Calcined Clays,*** Karen Scrivener, EPFL

25 min ***Durability Assessment of Alternative Cementitious Materials: Ongoing Research for Service Life Predictions,*** Kim Kurtis, Georgia Tech

POSTER PITCHES

Assessment of Chloride Transport in OPC-Limestone-Calcined Clay (LC3) Mortars, Hamed Maraghechi, EPFL

Carbonation of Portland Limestone Cement (PLC) Concrete Systems, Jose Garcia, University of Texas at Austin

Linking Performance and Pore Structure to Probabilistically Assess ACI Provisions for Freeze-Thaw Exposures, Scott Smith, Georgia Tech

15 min *Discussion*

14:45 Coffee Break

15:15	**Session 4: Non-Destructive Evaluation for Service-Life Prediction** Session Chair: Anthony F. Bentivegna
25 min	***How Can Electrical Imaging Modalities be used for Advancing Service Life Prediction of Concrete Structures?*** Mohammad Pour Ghaz, North Carolina State University
25 min	***Using Resistivity Measurements to Predict Service-Life of Reinforced Concrete Bridge Decks,*** Burkan Isgor, Oregon State University
15 min	***Ultrasonic Full Waveform Monitoring of Concrete Structures,*** Thomas Schumacher, Portland State University

POSTER PITCHES

Real-time Evaluation of Durability Characteristics of Concrete via Time-Domain Reflectometry, Somayeh Nassiri, Washington State University

15 min *Discussion*

MONDAY, JULY 17 (EVENING)

Group Winery Dinner

Lumos Winery

17:45	Shuttle bus start to Lumos (every 15 min)
18:15	Last bus to Lumos
20:30	Shuttle busses start return to Hotels (every 30 min)
21:00	Last bus to Hotel

TUESDAY, JULY 18 (MORNING)

CH2M Hill Alumni Center

8:30	Registration and Continental Breakfast
9:00	**Session 5: Numerical Modeling** Session Chair: Burkan Isgor
25 min	***Numerical Simulation of Early-Age Deformation and Cracking of RC Structures with Full-3D Multi-scale and Multi-Physical Integrated Analysis,*** Tetsuya Ishida, University of Tokyo
25 min	***Numerical Analysis of the Degradation Phenomena using the Coupled Thermodynamic Phase Equilibrium-mass Transfer System,*** Yoshifumi Hosokawa, Taiheiyo Cement and Kazuo Yamada, National Institute for Environmental Studies, Japan
25 min	***Statistical Tools and Estimation of the Service Life of Concrete Systems with Various Cementitious Materials, Corrosion Inhibitors, and Coatings,*** Radhakrishna Pillai, Manu Santhanam and Ravindra Gettu, IIT Madras

POSTER PITCHES

Mathematical Modeling based on the Evolution of Concrete Deterioration for Optimizing Concrete Service Life and Repair Schedules, Qingxu (Bill) Jin, Georgia Tech

The Long-Term Bridge Performance Program Bridge Portal, David Masceri and Nick Romano, State University of New Jersey, Aaron Strand and Matthew P. Adams, NJIT

15 min	*Discussion*
10:30	Coffee Break

10:50	**Session 6: Service-Life Prediction in Field** Session Chair: Doug Hooton
25 min	***Incorporating the Influence of Cracks on Service Life Predictions of Concrete Structures Exposed to Chlorides***, Jose Pacheco, CTL Group
25 min	***Service-Life Prediction of the Mactaquac Dam***, Mike Thomas, University of New Brunswick
15 min	***Service- Life Assessment Based on site NDTs - Relevance and Real Cases***, Roberto Torrent, Materials Advanced Services Ltd.
15 min	***Use of the Damage Rating Index as Input for Service-Life Prediction of ASR-Affected Concrete***, Fred Shrimer, Golder Associates

POSTER PITCHES

Characterization of Concrete Affected by Delayed Ettringite Formation Using the Stiffness Damage Test, Atolo Tuinukuafe, University of Alabama

Effect of Environmental Conditions on the Propagation of Natural Carbonation, Fred Aguayo, Texas State University

The Transport of Chloride Ions in PC-Limestone Cementitious Materials, Shiyu Sui, Hamed Maraghechi, Karen Scrivener and Sun Wei, EPFL

15 min *Discussion*

Bag Lunch and Group Hike, Marys Peak

~12:30	Depart CH2M Hill Alumni Center
~16:30	Return CH2M Hill Alumni Center

TUESDAY, JULY 18 (EVENING)

Cocktails and Appetizers

The Vue, Downtown Corvallis

18:00	Shuttle bus start to The Vue (every 15 min)
18:30	Last bus to The Vue
20:30	Shuttle buses return to Hotels (every 30 min)
21:30	Last bus to Hotel

WEDNESDAY, JULY 19

CH2M Hill Alumni Center

8:30	Continental Breakfast
9:00	**Session 7: Service Life Prediction in Field and Marine Environments** Session Chair: Jason H. Ideker
25 min	***Service Life Prediction: A Key Input for Future Department of Defense Asset Management,*** Robert Moser, US Army Corps
25 min	***Durability of Concrete Structures in Marine Environments: Design, Assessment and Beyond,*** Kefei Li, Tschinghua University
25 min	***Phase Diagrams, Volume Change, and Chloride Binding in the Ca(OH)2-CaCl2-H2O System and Its Impact on Concrete Durability,*** Jason Weiss, Oregon State University
15 min	***Service-Life of Concrete Containing Supplementary Cementing Materials in Marine Environment for 25 Years,*** Ted Moffat, University of New Brunswick
15 min	*Discussion*
10:45	Coffee Break
11:15	Discussion *Wrap-up, Cement and Concrete Research Special Publication Papers, next workshop dates and topic*
12:00	Lunch and Departure

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