



Conference Programme Overview

Venue: Protea Hotel, Techno Park, Stellenbosch 7600, South Africa

Moderation: Prof. Johan van der Spuy, Stellenbosch University, South Africa

DAY 1 | 7th November 2018

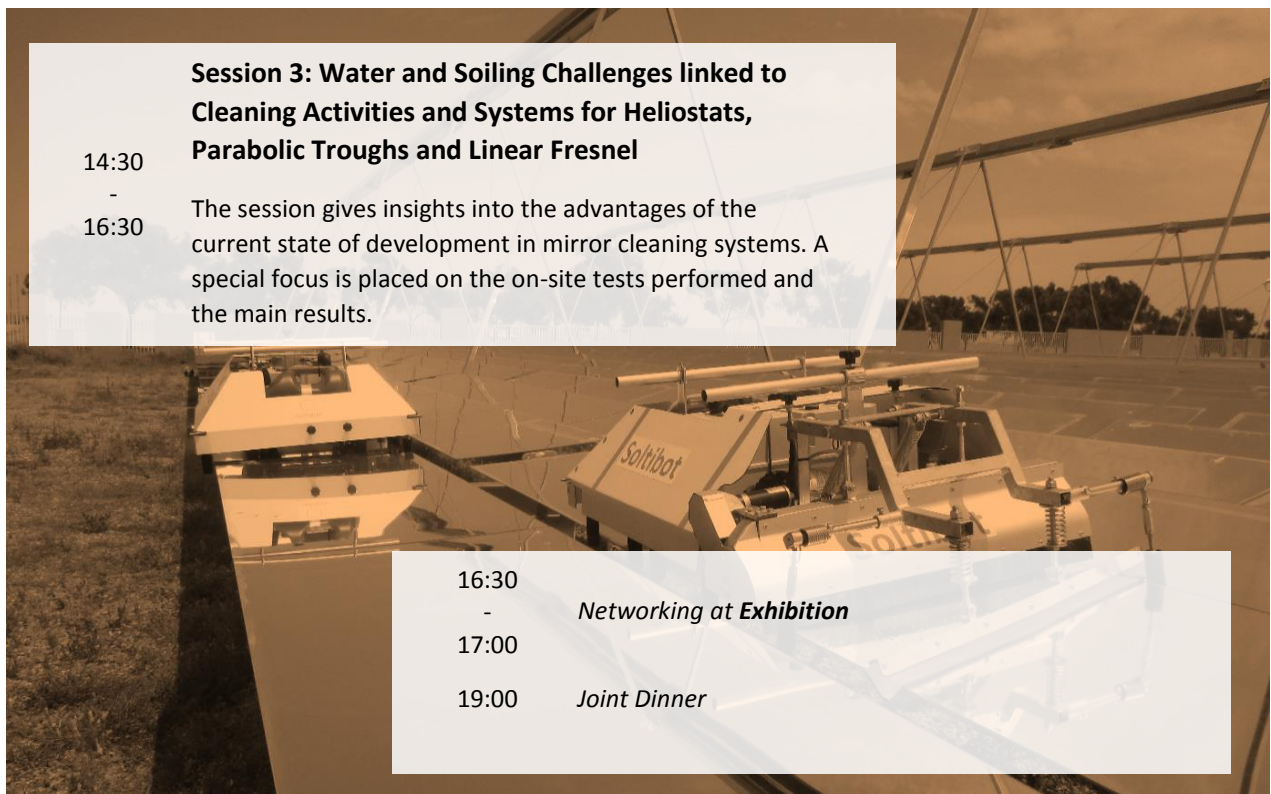
08:30	<i>Registration and welcome coffee</i>
09:00	Welcome
09:30	Key note
Session 1: Introduction to MinWaterCSP & technology challenges	
10:00	The MinWaterCSP consortium addresses the challenge of significantly reducing the water consumption of CSP plants while maintaining the overall cycle efficiency. Its objective is to reduce evaporation losses and mirror cleaning water consumption for small- and large-scale CSP plants through a holistic combination of next generation technologies. This session will present CSP operator expectations as well as the successfully demonstrated MinWaterCSP technology solutions
- 11:00	
11:00	<i>Break opportunity to visit the Exhibition</i>
- 11:30	



Session 2: Water Management Challenges in CSP plants

11:30 - 13:00 Reducing water consumption and environmental impacts of CSP plants, while not affecting the overall power cycle efficiency requires new solutions. Horizon2020 project partners present their technologies ready for the market on managing strategies of water as well as simulation-based analysis of water consumption in CSP plants. Operators and developers will present their experiences in commercial projects in Spain, Morocco and South Africa.

13:00 *Lunch break | **Exhibition***



Session 3: Water and Soiling Challenges linked to Cleaning Activities and Systems for Heliostats, Parabolic Troughs and Linear Fresnel

14:30 - 16:30 The session gives insights into the advantages of the current state of development in mirror cleaning systems. A special focus is placed on the on-site tests performed and the main results.

16:30 - 17:00 *Networking at **Exhibition***

17:00 - 19:00 *Joint Dinner*

DAY 2 | 8th November 2018

09:00 *Registration and welcome coffee*

09:30 **Welcome and Introduction to the Day**

09:45 **Key note**

10:15

- *Break | opportunity to visit the **Exhibition***

10:30

Session 4: Novel cooling system technologies for CSP plants

CSP plant cooling proves to be challenging due to the arid nature of the typical environments in which it is installed. This session elaborates on lab- and full-scale experimental as well as analytical research conducted for novel power plant heat exchangers and large axial fans. Aspects covered are studies conducted on wire surface fins, attempting to obtain increased heat transfer under dry-cooling, as well as the presentation of a directly integrated deluge condenser for air-cooled condenser applications. High efficiency and structurally stable fan design and manufacturing techniques, with the aim of achieving low auxiliary power consumption and high fan operating lifespan, are also shown.

10:30

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12:15

12:15 **Conclusions of conference**

12:30 *Lunch break and opportunity to visit **Exhibition***

14:00

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17:00

Site visit to the full-scale fan test facility and ACC integrated Deluge Cooling functional testing facility at Stellenbosch University

17:00

End of conference

Detailed Programme

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Moderation: Prof. Johan van der Spuy, Stellenbosch University, South Africa

DAY 1 | 7th November 2018

08:30 *Registration and welcome coffee*

09:00 **Welcome**

*Dr. Albert Zapke, ENEXIO Management GmbH, Germany
(Technical coordinator MinWaterCSP project)*

Prof Wikus van Niekerk, Dean of Engineering, Stellenbosch University, South Africa

09:30 **Key note**

*Prof. Eugene Cloete, Vice-Rector for Research, Innovation and Postgraduate Studies,
Stellenbosch University, South Africa*



11:00 - 11:30 *Break | opportunity to visit the **Exhibition***

11:30 Session 2: Water Management Challenges in CSP plants

13:00 Water management challenges in CSP plants

Nandu Bhula, ACWA POWER, South Africa

Managing Strategies of Water

- **Modelling of water use at CSP plants: Methods, validation and uses**
Frank Duvenhage, Stellenbosch University, South Africa
- **Water supply, treatment and reuse, by applying the technology train concept for near Zero Liquid Discharge**
Ron Gerards, Waterleau, Belgium (MinWaterCSP project)
- **The impact of intermittent water supply on communities and large cities**
Carlo Loubser, Stellenbosch University, South Africa

Simulation-based Analysis of Water Consumption in CSP plants

- **Techno-economic evaluation of water saving technologies developed by the MinWaterCSP consortium**
Shahab Rohani, Fraunhofer ISE, Germany (MinWaterCSP project)

Session chair:

Anna Heimsath, Fraunhofer ISE, Germany (MinWaterCSP project)

13:00 – 14:30 Lunch break / **Exhibition**

14:30 Session 3: Water and Soiling Challenges linked to Cleaning Activities and Cleaning Systems for Heliostats, Parabolic Troughs and Linear Fresnel

Yield analysis of different CSP plants based on in-situ soiling and cleaning data measurements

Dr. Ahmed Alami Merrouni, IRESEN, Morocco (MinWaterCSP project)

- **Robot-based cleaning of Linear Fresnel**
Vittorio Orioli, SOLTIGUA, Italy (MinWaterCSP project)
- **Truck-based cleaning of Heliostats and Parabolic Trough**
Javier García, ECILIMP TERMOSOLAR S.L., Spain (MinWaterCSP project)
- **Reuse of mirror cleaning water - results of water analysis and treatment tests of used mirror cleaning water**
Dr.-Ing. Joachim Went, Fraunhofer ISE, Germany (MinWaterCSP project)
- **Monitoring of soiling and optimization of cleaning strategies**
Anna Heimsath, Fraunhofer ISE, Germany (MinWaterCSP and Raiselife project)

Session chair:

Javier García, ECILIMP TERMOSOLAR S.L., Spain (MinWaterCSP project)

16:30 - 17:00 Networking at **Exhibition**

19:00 Joint Dinner

DAY 2 | 8th November 2018

09:00 *Registration and welcome coffee*

09:30 **Welcome and Introduction to the Day**

*Dr. Albert Zapke, ENEXIO Management GmbH, Germany
(Technical coordinator MinWaterCSP project)*

09:45 **Key note**

Dr. Matti Lubkoll, STERG Research Group Coordinator, Stellenbosch University

10:15 - 10:30 *Break | opportunity to visit the **Exhibition***

10:30 **Session 4: Novel cooling system technologies for CSP plants**

12:15 **Challenges related to operating large scale cooling systems in South Africa**
Ockert Augustyn, Eskom, South Africa

- **Compact Heat Exchanger Designs in Air-Cooled Condensers: Advantages and Drawbacks**
Hannes Fugmann, Fraunhofer ISE, Germany (MinWaterCSP project)
- **Deluge condenser system for reduced water consumption in CSP applications: Thermodynamic and cost analyses**
Dr. Riaan Terblanche, Kelvion Thermal Solutions (Pty) Ltd., South Africa (MinWaterCSP project)
- **Large diameter fan developments**
Prof. Johan van der Spuy and Dr. Danie Els, Stellenbosch University, South Africa (MinWaterCSP project)
- **Deluge condenser and fan system testing: Preliminary results from the MinWaterCSP cooling test facilities**
Dr. Francois Louw, Kelvion Thermal Solutions (Pty) Ltd., South Africa (MinWaterCSP project)

Session chair:

*Dr. Francois Louw, Kelvion Thermal Solutions (Pty) Ltd., South Africa
(MinWaterCSP project)*



12:15 **Conclusions of overall conference**

Prof. Johan van der Spuy, Stellenbosch University, South Africa (MinWaterCSP project)

12:30 - 14:00 *Lunch break and opportunity to visit **Exhibition***

14:00 **Site visit to the full-scale fan test facility and ACC integrated**

- **Deluge Cooling functional testing facility at Stellenbosch University**

17:00

Meeting point for bus transfer: entrance at 14:00

17:00 *End of conference*

This Agenda may be subject to changes.



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