

E W G A E

2018

33rd

European Conference on Acoustic Emission Testing

12-14
September 2018
Senlis France

www.ewgae2018.com

Program



European Working Group on
Acoustic Emission

With the collaboration of



Wednesday

September 12th



8:30 - 9:30 **Welcome-Registration**

9:30 - 10:00 **Conference Opening**

Room 6

10:00 - 11:00 **Keynotes**

Room 6

42 - Acoustic Emission method at the integrated structural health monitoring systems - the past, the present, the future [I. Razuvaev](#) - Alcor Corp., Dzerzhinsk, Russian Federation

86 - Acoustic Emission work over the last 10 years and relationship with Industry 4.0
[M. Cherfaoui](#) - Cetim, Senlis, France

11:00 - 11:20 **Break**

11:20 - 12:20 **Poster Session-Short Presentation**

Room 6

16 - Acoustic Emission energy for condition monitoring of RC waffle slab structures subjected to bidirectional ground seismic motions

[C. Abarkane](#)¹, [E. Suárez](#)¹, [F. Rescalvo](#)¹, [A. Benavent-Climent](#)², [A. Gallego](#)¹ - ¹Universidad de Granada, Spain. ²Universidad Politécnica de Madrid, Spain

20 - Characterization of failure mechanisms in the wood-CFRP interface by means of Acoustic Emission during pull-off tests

[F. J. Rescalvo](#), [A. Aguilar-Aguilera](#), [C. Abarkane](#), [E. Suárez](#), [A. Gallego](#) - University of Granada, Spain

28 - Features of Acoustic Emission in double-walled elements of vessels pressure in the presence of cracks

[I. Rastegaev](#)¹, [A. Chugunov](#)² - ¹Togliatti State University, Russian Federation. ²Profil' Ltd, Russian Federation

37 - Multiparametrical big data processing for Acoustic monitoring

[A. Samokhvalov](#) - Diapac Ltd., Moscow, Russian Federation

44 - About new AE criteria of cracking in metal object [I. Razuvaev](#), [E. Suchkov](#) - Alcor Corp., Dzerzhinsk, Russian Federation

46 - Damage detection for linear pneumatic actuators using Acoustic Emission

[H. Mahmoud](#)¹, [P. Mazal](#)¹, [E. Vlasic](#)², [M. Jana](#)³ - ¹Brno University of Technology, Brno, Czech Republic. ²Center of Technical Diagnostics - DAKEL, Brno, Czech Republic. ³Polické strojírný a.s., Policka, Czech Republic

47 - The parameters of Acoustic Emission signal proposed to identification of damaged and undamaged cylinders

[V. Richter](#), [H. Mahmoud](#), [P. Mazal](#), [V. Kratochvilova](#) - Brno University of Technology, Czech Republic

58 - Identification of damages in composite materials during registration of Acoustic Emission signals by piezoelectric and fiber-optic sensors

[O. Bashkov](#), [I. Bashkov](#), [A. Bryansky](#), [T. Bashkova](#) - Komsomolsk-on-Amur State University, Russian Federation

62 - FEM based simulation of Acoustic Emission monitoring on oil offshore pipelines

H. Calás, J.M. Martin, M. Pelaez, E. Cabellos - *Tecnatom, Madrid, Spain*

74 - In-situ control of additive manufacturing process by Acoustic Emission

G. Perrin¹, J. Frechard², P. Verlet³, C. Grosjean¹, D. Maissonette¹, J. Delgado¹, F. Zhang¹ - ¹*Cetim, France*, ²*BeAM Machines, Strasbourg, France*, ³*VLM Robotics, Mios, France*

89 - Features of Acoustic Emission in double-walled elements of vessels pressure in the presence of cracks

I. Rastegaev¹, A. Chugunov² - ¹*Togliatti State University, Russian Federation*, ²*Profil LTD, Togliatti, Russian Federation*

12:20 - 13:40 Lunch

13:40 - 15:20

Room 6

Monitoring in process

19 - Combination of vibration analysis & Acoustic Emission measurements to better characterize damage and mechanical behavior of aerospace high speed gear box

Y. Hebrard¹, A. Proust², M. Batel² - ¹*SKF, Valence, France*, ²*Mistras Group, Sucy en Brie, France*

79 - Advanced condition monitoring system using Acoustic Emission and vibration analysis technique

D.H. Kim - *Rectuson, Co., LTD., Chang Won, Korea*

35 - Acoustic Emission for in situ monitoring of laser processing

S. Shevchik, T. Le Quang, B. Meylan, K. Wasmer - *EMPA, Thun, Switzerland*

72 - Monitoring of stamping by Acoustic Emission (AE)

A. Saidoun, C. Hervé - *Cetim, France*

Room 7

Advanced Composites - I

06 - Modelling of fiber break as Acoustic Emission source in SFFT: comparison with experimental results

Z. Hamam¹, N. Godin¹, C. Fusco¹, T. Monnier² - ¹*Univ Lyon, INSA, MATEIS UMR 5510, F-6962, Villeurbanne, France*

²*Univ Lyon, INSA, LVA EA677, F-6962, Villeurbanne, France*

14 - Acoustic Emission monitoring of adhesively bonded wood joints under quasistatic and cyclic fatigue mode II flexure loads using end-notch-flexure specimens

A.J. Brunner¹, G. Clerc², P. Niemi² - ¹*Empa, Dübendorf, Switzerland*, ²*BFH, Bern University of Applied Sciences, Biel/Bienne, Switzerland*

17 - Acoustic Emission analysis during bending tests of timber beams reinforced with carbon fiber composite

F. Rescalvo, C. Abarkane, E. Suárez, A. Gallego - *University of Granada, Spain*

23 - Frequency-Amplitude class of Acoustic Emission for different fracture mechanisms in C/SiC composite

D. Xiao¹, Y. Gao^{1,2}, L. Jin¹, F. Meng¹, N. Li¹, X. Zhou¹, Z. Tong¹, B. Jiang³, T. He² - ¹*Beijing Electro-Mechanical Engineering Institute, China*, ²*Beihang University, Beijing, China*, ³*Shenyang Aerospace Xinguang Group Co., LTD, China*

24 - Mechanical behavior and Acoustic Emission technique for detecting damage in C/SiC structure

Y. Gao^{1,2}, L. Jin¹, B. Jiang³, Z. Tong¹, D. Xiao¹, X. Zhou¹, N. Li¹, F. Meng¹ - ¹*Beijing Electro-Mechanical Engineering Institute, China*, ²*Beihang University, Beijing, China*, ³*Shenyang Aerospace Xinguang Group Co., LTD, China*

15:20 - 15:40 Break

15:40 - 17:40

Room 6

Monitoring metallic structures

27 - Study of a steel railway bridge with defects under various load conditions

M. Nowak¹, I. Lyasota², I. Baran¹ - ¹Office of Technical Inspection, Cracow, Poland. ²Cracow University of Technology, Poland

29 - Damage monitoring on a steel truck trailer using parameter-based analysis of Acoustic Emissions

J.V. Pimente¹, R. Klemm¹, M. Dalgic², A. Irretier², K.L. Krieger - ¹University of Bremen, Institute of Electrodynamics and Microelectronics (ITEM), Germany. ²Leibniz Institute for Materials Engineering (IWT), Bremen, German

31 - Data processing and interpretation at AE monitoring

T. Petersen, A. Samokhvalov, W. Chernigovski, D. Kurnosov - Diapac Ltd., Moscow, Russian Federation

49 - Structural health monitoring using Acoustic Emission on metallic components in industrial plants

G. Lackner, H. Marihart, G. Schauritsch - TÜV Austria, Vienna, Austria

51 - Acoustic Emission Testing on a rail bridge

H. Marihart, G. Lackner, M. Posch - TÜV Austria, Vienna, Austria

83 - Novel AE monitoring of hydrogen induced damaged vessel and real time alarms. A case study

D. Papasalouros, K. Bolas, I. Ladis, E. Aerakis, A. Anastasopoulos, D. Kourousis - Mistras Group Hellas ABEE, Athens, Greece

Room 7

Advanced Composites - II

26 - Dynamic Acoustic Emission for the characterization of the nonlinear behavior of composite materials

X. Yu¹, M. Bentahar¹, S. Montresor¹, C. Mechri^{1,2} - ¹LAUM, Le Mans, France. ²CTTM, Le Mans, France

55 - The influence of source depth and source-to-sensor distance on the AE signal characteristics of damaging events in thin-walled CFRP laminates

B. Kelkel, J. Vogtmann, M. Gurka - Institut für Verbundwerkstoffe, Kaiserslautern, Germany

57 - Acoustic Emission behaviour on CFRP with curved fibers

Y. Mizutani¹, T. Ashizawa¹, N. Toyama², A. Todoroki¹ - ¹Tokyo Tech., Japan. ²AIST, Tsukuba, Japan

63 - Experimental investigation of the damage mechanisms in interlock reinforced composites based on AE data analysis

M. Kharrat¹, G. Moreau², Z. Aboura³ - ¹Mistras group, Sucy-en-Brie, France. ²Safran Composites, Itteville, France. ³University of Technology of Compiègne, France

73 - Use of AE for characterization of damage mechanisms in composite accumulator

O. Colas¹, C. Briançon¹, C. Hervé¹, A. Houssais² - ¹Cetim, France. ²Parker Olaer, Colombes, France

18:30 - 22:45



**Gala evening
at Royaumont Abbey**



9:00 - 10:20

Room 6

Signal Processing - Equipment and Software - I

40 - Continuous recording and wireless transmission of AE waveforms by battery powered sensor nodes

K. Ito¹, M. Enoki² - ¹National Institute for Materials Science,

Tsukuba, Japan. ²The University of Tokyo, Japan

45 - Research the comparative sensitivities of fiber-optic sensors and piezoelectric sensors for detection of Acoustic Emission waves

H. Htoo Khun¹, O. Bashkov¹, V. Zaikov¹, R. Romashko², I. Bashkov¹ -

¹Komsomolsk-on-Amur State University, Russian Federation.

²Institute of Automation and Control Processes FEB RAS, Vladivostok, Russian Federation

96 - Phased array modal Acoustic Emission (PA-MAE™)

B. Burks - Digital Wave Corporation, Centennial, USA

Room 7

Advanced Composites - III

01 - Modal Acoustic Emission analysis of mode-I and mode-II fracture of adhesively-bonded joints

A. Crawford, M. Ghazi Droubi, N. Faisal - Robert Gordon University, Aberdeen, United Kingdom

02 - On use of signal features for Acoustic Emission source identification in fibre-reinforced composites

M.G.R. Sause - University of Augsburg, Germany

03 - Damage diagnostic and lifetime prognosis for ceramic matrix composite with Acoustic Emission during long-term mechanical tests at intermediate temperature

N. Godin, P. Reynaud, G. Fantozzi - INSA of Lyon - MATEIS, France

04 - Combination of synchrotron computed tomography and Acoustic Emission measurements for cyclic loading of fibre-reinforced composites

P. Potstada¹, S. Rosini², M. Mavrogordato², I. Sinclair²,

S.M. Spearing², M.G.R. Sause¹ - ¹University of Augsburg,

Germany. ²University of Southampton, United Kingdom

10:20 - 10:40 Break

10:40 - 12:20

Room 6

Monitoring Composites/ Different applications

48 - Structural Health Monitoring of composites structures by Acoustic Emission analysis

L. Schubert, E. Schulze, R. Neubeck, B. Weihnacht - *Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany*

68 - Structural Health Monitoring of composite aerospace structures with Acoustic Emission

M. Lehmann, A. Bueter, O. Schwarzhaupt, C. Contell Asins - *Fraunhofer LBF, Darmstadt, Germany*

36 - Post-harvest Acoustic Emission in angiosperm leaves

S. Rosner - *BOKU, Vienna, Austria*

53 - Mechanical and Acoustic Emission characterization of lime-based masonry constituents

N. Shetty¹, G. Livitsanos², D. Aggelis², D. Van Hemelrijck², M. Wevers¹, E. Verstrynge¹ - ¹*KU Leuven, Belgium*. ²*Vrije Universiteit Brussel, Belgium*

22 - Characterization of particle impacts using Acoustic Emission

E. Serris, L. Carrillo, A. Valentini - *Mines Saint-Etienne, France*

Room 7

Material characterisation

32 - The sound of metal: Acoustic Emission during the deformation of commercially pure titanium

N. Goossens, M. Seefeldt, M. Wevers - *KU Leuven, Belgium*

38 - Analysis of kinking and twinning behavior in mg alloys by AE clustering method

M. Enoki, K. Tamura, T. Shiraiwa - *The University of Tokyo, Japan*

39 - Non-threshold Acoustic Emission analysis of damage evolution in pipe segments of steel S355J2H under bending load

F. Baensch, W. Baer, P. Wossidlo, A. Habib - *Bundesanstalt für Materialforschung und prüfung (BAM), Berlin, Germany*

71 - Galling detection by Acoustic Emission (AE) according to ASTM G98

A. Saidoun¹, C. Hervé¹, Y. Chen¹, T. Lesage² - ¹*Cetim, Senlis, France*. ²*Université de Compiègne, France*

84 - Acoustic Emission method in nanoindentation and scratch test

R. Ctvrtlik, J. Tomastik, V. Koula, M. Drab - *ZD RPETY - Dakel, Praha, Czech Republic*

12:20 - 13:40 Lunch

13:40 - 15:20

Room 6 Corrosion

11 - AE Monitoring and three-dimensional observation of stress corrosion cracking from corrosion pits

K. Wu¹, K. Ito², I. Shinozaki³, M. Enoki¹ - ¹Department of Materials Engineering, The University of Tokyo, Japan. ²National Institute for Materials Science, Tsukuba, Japan. ³Research Laboratory, IHI Corporation, Yokohama, Japan

12 - Effects of media degradation on the Acoustic Emission detection

L. Calabrese, M. Galeano, E. Proverbio - Department of Engineering, University of Messina, Italy

18 - Application of Acoustic Emission measurements to monitor the initiation and the propagation of single or multiple Stress Corrosion Cracks (SCC)

O. Al Hajj¹, A. Proust¹, J. Bolivar², M. Fregonese³ - ¹Mistras Group SAS, Sucy en Brie, France. ²Cetim, France. ³Mateis Lab, Villeurbanne, France

64 - Acoustic Emission from gas bubble nucleation and breaking away from a flat surface

V. Kietov¹, M. Mandel¹, L. Krüger¹, A. Vinogradov² - ¹Institute of Materials Engineering, TU Bergakademie Freiberg, Germany. ²Norwegian University of Science and Technology - Trondheim, Norway

Room 7 Pressure Vessels

69 - Application of AE technique and thermography for assessment of sludge volume inside crude oil storage tanks

I. Baran, T. Dunaj, M. Nowak - Office of Technical Inspection (UDT), Warszawa, Poland

75 - New edition of GEA guideline for Acoustic Emission Testing of pressure equipments

C. Di Giulio¹, C. Hervé² - ¹Air Liquide Industrie, Bagneux, France. ²Cetim, France

07 - Acoustic Emission study of pressure vessels material degradation processes after long-term operation in the refinery industry

I. Lyasota, T. Ryncarz, B. Kozub - Cracow University of Technology, Poland

15 - Use of Acoustic Emission for inspection of various composite pressure vessels subjected to mechanical impact

F. Dahmene¹, O. Bardoux², S. Bittendiebel¹, P. Blanc-Vannet², N. Alexandre³, F. Nony³, M. Barcikowski⁴, A. Maldachowska⁴, M. Panek⁴, P.S. Heggem⁵, A. Echtermeyer⁶, K. Lasn⁶ - ¹Institut de Soudure, Yutz, France. ²Air Liquide, Les Loges en Josas, France. ³CEA, Le Ripault, France. ⁴Wroclaw University of Technology, Wroclaw, Poland. ⁵Hexagon Composites, Raufoss, Norway. ⁶Norwegian University of Science and Technology, Trondheim, Norway

15:20 - 15:40 Break

15:40 - 17:15



Room 6

EWGAE Business Meeting

18:00 - 22:15

Senlis Discovery
and Evening Dinner

Friday

September 14th



9:00 - 10:40

Room 6

Signal processing - Equipment and Software - II

30 - Detection and identification of low-amplitude Acoustic Emissions during plastic deformation under indentation and scratch testing

A. Danyuk¹, D. Merson¹, A. Vinogradov^{1,2} - ¹Togliatti State University, Russian Federation. ²Norwegian University of Science and Technology, Trondheim, Norway

33 - When AE (Acoustic Emission) meets AI (Artificial Intelligence) II

K. Wasmer, F. Saeidi, B. Meylan, T. Le Quang, S.A. Shevchik - Empa - Swiss Federal Laboratories for Materials Science and Technology, Thun, Switzerland

65 - AE fracturing modes classification by means of shear tensile source model

M. Petruzalek¹, T. Lokajicek¹, T.Svitek¹, P. Kolar², Z. Jechumtalova², J. Sileny², P. Adamova² - ¹Institute of Geology of the Czech Academy of Sciences, Prague, Czech Republic. ²Institute of Geophysics of the Czech Academy of Sciences, Prague, Czech Republic

21 - AE sensor sensitivity verification using a stimulated motion verified by laser-vibrometry

H. Vallen - Vallen Systeme GmbH, Icking, Germany

Room 7

Signal processing - Equipment and Software - III

76 - Method for assessing the likelihood of fatigue crack detecting

V. Barat¹, D.V Chernov¹, S.V. Elizarov² - ¹National Research University "MPEI", Moscow, Russian Federation. ²Llc Interunis-IT, Moscow, Russian Federation

78 - Statistical non-parametrical algorithm for acoustic emission impulses detection adapted on the basis of modal analysis approach

V. Barat, D.A. Terentyev, S. Elizarov - Interunis-IT LLC, Moscow, Russian Federation

80 - CFRP failure mechanisms detection using traditional and modal AE equipment's features

C. Rowland - Pancom Ltd, Huntingdon, United Kingdom

82 - Application and analysis of AE signals based on the EEMD-FastICA method

Y. Jiang¹, F. Xu², Z. Yang¹, J. Yu, B. Xu⁴ - ¹College of Intelligent Science and control Engineering, Jinling Institute of Technology, Nanjing, China. ²School of Mechanical Engineering, Southeast University, Nanjing, China. ⁴Nanjing Tech University, China

10 - Evaluation of localized corrosion using acoustic emission signals: wavelets denoising and Random Forests classification

N. Morizet, M. Frégonèse, N.Godin, J. Tang, B. Normand - INSA of Lyon - Mateis, Villeurbanne, France

10:40 - 11:00 Break

11:00 - 12:40

Room 6

Civil Engineering

09 - Acoustic Emission measurements during a tensile fatigue test in reinforced concrete

G. Manthei, M. Koob, J. Minnert - *THM Technische Hochschule Mittelhessen, Gießen, Germany*

59 - AE analysis of particle crushing: towards 3D analysis of soils

S. Luo, - *University of Bristol, United Kingdom*

77 - Test of bending reinforced concrete structures by means of Acoustic Emission method

S.V. Elizarov¹, V.V. Bardakov¹, A.I. Sagaidak² - ¹*Interunis-IT LLC, Moscow, Russian Federation.* ²*JSC SIC Construction, Moscow, Russian Federation*

81 - Assessment of infrastructures by rainy induced AE tomography with wave velocity and attenuation rate

T. Shiotani¹, K. Hashimoto¹, N. Okude¹, C. Granier², K. Watabe³, H. Takamine³ - ¹*Kyoto University, Japan.* ²*imdm-infra consulting, Vevey, Switzerland.* ³*Toshiba Corporation, Kawasaki, Japan*

Room 7

Source location

34 - Contouring geodetically accurate Acoustic Emission sources via kernel density estimates

P. Gális, V. Kús - *Department of Mathematics, FNSPE, CTU in Prague, Czech Republic*

41 - Analysis of AE source location precision for general sensor configurations

M. Chlada, J. Kober, Z. Prevorovsky - *Institute of Thermomechanics of the CAS, v. v. i., Prague, Czech Republic*

54 - Time reversal localization of continuous and burst AE sources under noise

Z. Prevorovsky, J. Krofta, J. Kober, M. Chlada, M. Mracko - *Institute of Thermomechanics CAS, Prague, Czech Republic*

12:45 - 13:00 **Conference Closure**

The organizers may change this program if necessary.

Don't miss out...



Conference Souvenir group photo September 12th

At 13:20 in front of the Cetim
(Near the welcome desk)



www.ewgae2018.com/photo-gallery



EWGAE Business Meeting September 13th

15:40 - 17:20

Traditionally, the Ewgae Business meeting is held during the Ewgae Conference and is open to members and guests at the Senlis Conference.

This meeting will provide general informations on the Ewgae Working Group and discuss the venue of the next conference in 2020



Gala Dinner - Royaumont Abbey September 12th

19:15

Arrival at the Royaumont Abbey

19:15 - 19:45

Tour of the Abbey and its gardens

19:45 - 20:30

Cocktail

20:30 - 22:30

Dinner at the monks' refectory

22:45

Departure to the hotels



Gala Dinner - Cetim, Senlis September 13th

18:00 - 19:00

Senlis Discovery (Visit of the cathedral and the royal castle's park)

19:30 - 20:30

Oenological demonstration

20:45 - 22:00

Dinner

22:15

Departure to the hotels

Useful information



Shuttle Schedule

Tuesday, September 11th

19:30 Roissy Charles de Gaulle ▶ hotel's Saint- Witz, hotel's Senlis

Wednesday, September 12th

07:30 Roissy Charles de Gaulle ▶ Cetim

07:45 Novotel Saint-Witz ▶ Cetim

07:50 Golden Tulip Saint-Witz ▶ Cetim

08:00 Campanile Saint-Witz ▶ Cetim

08:15 Campanile and Ibis Senlis ▶ Cetim

08:20 Escapade Senlis ▶ Cetim

18:30 Cetim ▶ Gala Evening

22:45 Gala Evening ▶ hotel's Saint- Witz, hotel's Senlis, and Cetim

Thursday, September 13th

07:45 Novotel Saint-Witz ▶ Cetim

07:50 Golden Tulip Saint-Witz ▶ Cetim

08:00 Campanile Saint-Witz ▶ Cetim

08:15 Campanile and Ibis Senlis ▶ Cetim

08:20 Escapade Senlis ▶ Cetim

22:00 Cetim ▶ hotel's Saint- Witz, hotel's Senlis

Friday, September 14th

07:45 Novotel Saint-Witz ▶ Cetim

07:50 Golden Tulip Saint-Witz ▶ Cetim

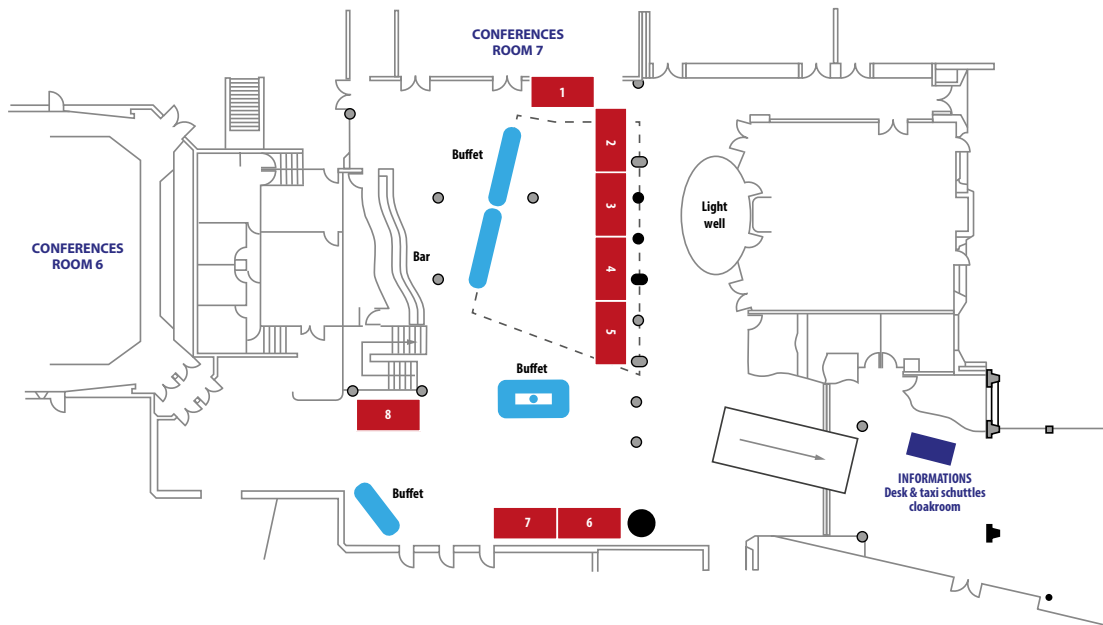
08:00 Campanile Saint-Witz ▶ Cetim

08:15 Campanile and Ibis Senlis ▶ Cetim

08:20 Escapade Senlis ▶ Cetim

14:00 Cetim ▶ Roissy Charles de Gaulle

Event map



- | | | |
|-----------------------------------|-------------------------|-----------------------|
| 1 MISTRAS | 4 DEWESOFT | 7 ACTEMIUM NDT |
| 2 QINGCHENG AE INSTITUTE | 5 INTERUNIS - IT | 8 CETIM |
| 3 DIGITAL WAVE CORPORATION | 6 VALLEN | |

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