



Research Networking Programmes

Short Visit Grant or Exchange Visit Grant

(please tick the relevant box)

Scientific Report

The scientific report (WORD or PDF file – maximum of eight A4 pages) should be submitted online within one month of the event. It will be published on the ESF website.

Proposal Title: Workshop IsoAstro at the university of Madison

Application Reference N°: 6611

1) Purpose of the visit

IsoAstro is a workshop dedicated to learn the methods of radio-astrochronology to help scientists working on the construction of a more robust Geological Time Scale. The use of a new R package, dedicated to statistical methods on astrochronology is taught.

2) Description of the work carried out during the visit

Stephen R. Meyers made an introduction on the challenge on intercalibrating radio- and astrochronology, the use of spectral analyses for a cyclostratigraphic study and introduced us "astrochron" package, written on R and dedicated to statistical treatments for astrochronology.

Mark Schmitz and Bradley Singer made lessons on the use of U/Pb and Ar/Ar radiochronology. Lessons were composed of an introduction to the radioactivity, definition of elements daughter and father and how to find the initial ratios of elements daughters and fathers in a sample.

Bradley Cramer made an introduction to the definition of chronostratigraphic terms, next challenges of the stratigraphy and the uncertainty of the current Geological Time Scale. Linda Hinnov made an introduction to the Milankovitch theory, definition of the orbital

parameters used to calculate the eccentricity, the equations to calculate the precession and the obliquity, and the insolation.

Practices were made to use "astrochron" package and to use "Isoplot" software dedicated to statistical treatments on Ar/Ar radiochronology. Stephen Meyers et al. made visits of the department to discover the tools acquired by the department for astrochronology and radiochronology (XRF, XRD, mass spectrometers, ICP-MS).

Part of the workshop was dedicated to short talks (15 min) given by the participants. I gave a talk entitled "Optimizing the identification of the Milankovitch cycles in sedimentary cycles", which was dedicated to the introduction of an R package on statistical treatments to match sedimentary cycles to orbital cycles. This package is currently the topic of an article in preparation and I proposed to integrate this package to "astrochron" package of Stephen Meyers.

3) Description of the main results obtained

I learnt how to use "astrochron" R package, a new package on statistical treatments on astrochronology. The package has not been published yet, so that my participation to "IsoAstro workshop" provided me with a software that allows me to maintain my position at the cutting-edge of the methods of the research in cyclostratigraphy.

A second aspect of my participation to "IsoAstro" workshop is the talk that I could give to present a new R package dedicated to the optimization of the identification of the Milankovitch forcing on the sedimentary series. The package received a good welcome by the community of cyclostratigraphers and I received advice from Stephen R. Meyers to improve the quality of the package.

4) Future collaboration with host institution (if applicable)

Stephen R. Meyers (university of Madison) proposed his help for reviewing the article our team is preparing on the R package that I presented during the workshop. In addition, he proposed a collaboration to help us in developing the instruction manual of the R package to allow each cyclostratigrapher to use the program.

5) Projected publications / articles resulting or to result from the grant (*ESF must be acknowledged in publications resulting from the grantee's work in relation with the grant*)

A publication is being prepared on the R package presented during the workshop. The targeted journal is "Paleoceanography"

6) Other comments (if any)

"IsoAstro workshop" proposed a series of high-quality lessons on radio- astrochronology. The workshop is at the cutting edge of the

research in cyclostratigraphy and radiochronology and should be regularly organized in the future. This is the amazing opportunity to meet the methods of radio- and astorchronology, an to meet the colleagues as well to initiate amazing discussions.

Sujet: MARTINEZ/MATHIEU(ADT) 17AOU CDG CPH
De : "EDREAMS FRANCE SARL (AGENTID05894505)"
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Pour : MATHIEU.MARTINEZ@UNIV-PAU.FR

MARTINEZ/MATHIEU(ADT) 17AOU CDG CPH

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78 AVENUE RAYMOND POINCARÉ	REFERENCE DU DOSSIER 6X43MT
75016 PARIS	
FAX : 0034935088582	MARTINEZ/MATHIEU

SCANDINAVIAN AIRLINES – SK 566
 DIM 17AUG PARIS FR COPENHAGEN DK 1100 1255
 CHARLES DE GAULLE KASTRUP
 SANS ESCALE TERMINAL 1 TERMINAL 3 DUREE 1:55
 H.L.E 1015
 RESERVATION CONFIRMEE– M ECONOMIQUE
 A BORD : NOURRITURE ET BOISSONS PROPOSEES A LA VENTE
 EQUIPEMENT:AIRBUS INDUSTRIE A320

SCANDINAVIAN AIRLINES – SK 943
 DIM 17AUG COPENHAGEN DK CHICAGO IL 1540 1740
 KASTRUP O HARE INTERNATIONA
 SANS ESCALE TERMINAL 3 TERMINAL 5 DUREE 9:00
 H.L.E 1450
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 A BORD : REPAS
 EQUIPEMENT:AIRBUS INDUSTRIE A340-300

SCANDINAVIAN AIRLINES – SK 946
 SAM 23AUG CHICAGO IL STOCKHOLM SE 1625 0750
 O HARE INTERNATIONA ARLANDA 24AUG
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 H.L.E 1455
 RESERVATION CONFIRMEE– K ECONOMIQUE
 A BORD : REPAS
 EQUIPEMENT:AIRBUS INDUSTRIE A330-300

SCANDINAVIAN AIRLINES – SK 573
 LUN 25AUG STOCKHOLM SE PARIS FR 0715 0950
 ARLANDA CHARLES DE GAULLE
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 H.L.E 0635
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 A BORD : NOURRITURE ET BOISSONS PROPOSEES A LA VENTE

EQUIPEMENT:BOEING 737-600

NUMERO DE RESERVATION SK/6X43MT

MARTINEZ/MATHIEU

BILLETSK/ETKT 117 4864913840

MONTANT TOTAL DES BILLETS: 1056.71 EUR FRAIS INCLUS

NE PAS OUBLIER D'EMMENER VOTRE CARTE

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VOL/FLIGHT: **SK943** EMBARQUEMENT/BOARDING: **14:55** GATE: SEAT: **37D** CLASSE: **M** SEAT: **37D**

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 DE/FROM: **COPENHAGEN/CPH**
 A/TO: **CHICAGO/ORD**

CLASSE: **M**
 DATE: **17AUG**

MARTINEZ/MATHIEU
SK 943 17AUG
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 A/TO: **CHICAGO/ORD**

DEPART: **15:40**

ETKT 117486491384002

SEQUENCE NO: **0117**

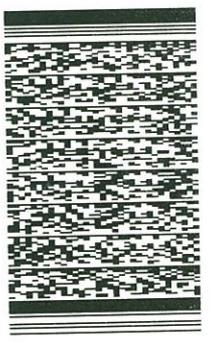
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MARTINEZ/MATHIEU PNR **6X43MT** NOTES

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SK 0946	23AUG	1625	Mk	CHICAGO ORD	STOCKHOLM ARN	M15	00038	38D	1540
SK 0573	25AUG	0715	Mk	STOCKHOLM ARN	PARIS CDG		00001	8E	0655



Signature

TICKET NUMBER 1174864913840

A STAR ALLIANCE MEMBER

CARTE D'EMBARQUEMENT

BOARDING PASS



VOL/FLIGHT: **SK566** EMBARQUEMENT/BOARDING: **10:30** GATE: **7078** SEAT: **17F** CLASSE: **M** SEAT: **17F**

NOM/NAME: **MARTINEZ/MATHIEU**
 DE/FROM: **PARIS/CDG**
 A/TO: **COPENHAGEN/CPH**

CLASSE: **M**
 DATE: **17AUG**

MARTINEZ/MATHIEU
SK 566 17AUG
 DE/FROM: **PARIS/CDG**
 A/TO: **COPENHAGEN/CPH**

DEPART: **11:00**

ETKT 117486491384001

SEQUENCE NO: **0103**

SEQUENCE NO: **0103**

ETKT 117486491384001

UNIVERSITY OF WISCONSIN-MADISON
DEPARTMENT OF GEOSCIENCE

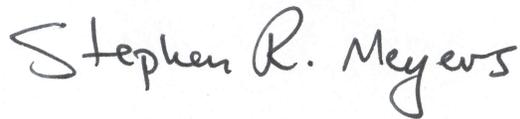
A466 Weeks Hall
1215 W. Dayton St.
Madison, WI
53706

September 1, 2014

To Whom It May Concern:

The purpose of this letter is to confirm that Mr. Mathieu Martinez participated in the *2014 IsoAstro Geochronology Workshop: The Integration and Intercalibration of Radioisotopic and Astrochronologic Time Scales*. The workshop and short course was held at the University of Wisconsin-Madison from August 18-23, 2014. Please feel free to contact me if you have any questions.

Very sincerely,



Dr. Stephen R. Meyers
Associate Professor, UW-Madison
Lead Convener of the 2014 IsoAstro Workshop
smeyers@geology.wisc.edu