Sandrine Lefebvre
Université Paris 6
Tour 45 Barre 45-46 3&4 étages
4 place Jussieu
75252 PARIS cedex 05
FRANCE
Birth date: 11th July 1976

Office phone: +33 1 44 27 84 47
Fax: +33 1 44 27 49 67
sandrine.lefebvre@aero.jussieu.fr
http://www.astrosurf.com/lefebvre

PROFESSIONAL EXPERIENCE

From oct. 2008 **Post-doc in the LATMOS of the IPSL (Institut Pierre Simon Laplace) in Paris (France)**
- Research in Earth Climate in the framework of PICARD
  - ⇨ Study of the influence of the solar variability on Earth climate through the stratosphere

Collaborators: S. Bekki, M. Marchand, G. Thuillier
- Associate researcher in the Astrophysical Service (SAp) of the Commissariat à l'Energie Atomique (CEA)

Collaborators: S. Turck-Chièze's team

2005-2008 **Post-doc in the Astrophyical Service (SAp) of the Commissariat à l'Energie Atomique (CEA) in Saclay (France)**
- Research in solar physics in the framework of SDO, PICARD and DynaMICCS
  - ⇨ Study of the subsurface dynamics (leptocline) and the solar radius variability
  - ⇨ Study of solar variability (radius and irradiance) and consequences for Earth climate

Collaborators: S. Turck-Chièze, P. Nghiem (SAp), A. Kosovichev (Stanford), J.P. Rozelot (OCA)
- Analysis of GOLF instrument data & Webmaster of GOLF pages

Collaborators: S. Turck-Chièze, R. García (SAp), S. Jiménez-Reyes (IAC)

2004-2005 **Post-doc at UCLA (University of California Los Angeles) in Los Angeles (USA)**
- Research in the framework of the solar variability using Mount Wilson data
  - ⇨ Participation to the SPADIP program of analysis and digitization of photographic plates of Mt. Wilson
  - ⇨ Analysis of the solar radius database of Mount Wilson

Collaborators: R. Ulrich, L. Bertello, J. Javaraiah, J. Boyden and F. Varadi (UCLA)
- Study of the solar subsurface stratification during the 11-year cycle using SOHO/MDI data

Collaborators: A. Kosovichev (Stanford)

2000-2003 **Thesis at the Observatoire de la Côte d'Azur (OCA) in CERGA department**
- Research in solar variability
  - ⇨ Study of the solar asphericities and the solar radius variability
  - ⇨ Simulations in order to compare ground and future space data in the framework of the PICARD mission

Collaborator: J.P. Rozelot

Teaching in an Engineer School at Grasse (France)
- Thermodynamics (25h × 3 years)
- Fluids mechanics (38h × 2 years)

1999 **Training period of 2 months at the CEA of Bruyères le Chatel**
- Research in seismic risk: numerical site model & compilation of focal mecanisms of the North-East of France

Collaborator: M. Flouzat

1998 **Training period of 1 month at the Observatoire de Strasbourg**
- Research in astrophysics: Analysis and identification of stars from the TYCHO program

Collaborator: D. Egret

EDUCATION

2003 **DOCTORATE** in Science of Universe, Université de Nice - Sophia Antipolis (France), grade "Très honorable"
- *Title :* Déformées solaires : diamètre et structure interne. Simulations en vue d'intercomparer les données sol et espace/Solar distortions : diameter and internal structure. Simulations in order to compare ground and space data
- *Advisor :* J.P. Rozelot (OCA)

2000 **DEA** in Physics and Chemistry of the Earth, EPGS (Ecole de Physique du Globe de Strasbourg – Université Strasbourg I, France) (DEA = Diplôme d'Etudes Approfondies = Master).

2000 **ENGINEER** diploma in Geophysics, EPGS.

1999 **MAITRISE** in Earth Science – option géophysique, EPGS – Strasbourg I.

1998 **LICENCE** in Earth Science, EPGS – Strasbourg I.

1994 **BACCALAUREAT SERIE C** followed by the "Classes Préparatoires aux Grandes Ecoles" from 1994 to 1997.

CONTINUOUS FORMATION AND FOLLOWED INTERNATIONAL SCHOOLS

2008 ➢ Ecole du CNRS à Cargèse: *Processus physiques dans l'héliosphère et contraintes observationnelles.*

2006 ➢ Advanced summer school in Solar Physics, Palma de Mallorca (Spain).

➢ Master 2 Recherche astrophysique à l'Observatoire de Paris-Meudon (France) : *Activité du Soleil et des étoiles, Plasmas spatiaux et relations Soleil-Terre.*

2003 8ème Ecole d'Astrophysique d'Oléron (France) : *Outils de l'astrophysique pour une coopération professionnels/amateurs*.

2002 7ème Ecole d'astrophysique solaire d'Oléron : *La météorologie de l'espace*.

2001 ➢ 2ème Ecole d'exobiologie, La Colle sur Loup (France).

➢ Formation post-DEA de l'Université de Nice (France) : *Traitement d'images.*

2000 5ème Ecole d'astrophysique solaire d'Oléron : *Déformations gravitationnelles solaires : conséquences astrophysiques.*

MAIN PUBLICATIONS

You will find my complete list of publications in the corresponding attached file. The following articles can be downloaded from my website http://www.astrosurf.com/lefebvre

- **Lefebvre S.**, Nghiem P. and Turck-Chièze S., *Impact of a radius and composition variation on stratification of the solar subsurface layers*, ApJ, **2009**, 690, 1272.
- **Lefebvre S.**, García R.A., Jiménez-Reyes S.J., Turck-Chièze S. and Mathur S., Variations of the solar granulation motions with height using the GOLF/SoHO experiment, A&A, **2008**, 490, 1143.
- Fazel Z., Rozelot J.P., **Lefebvre S.**, Ajabshirizadeh A. and Pireaux S., *Solar gravitational energy and luminosity variations*, New Astronomy, **2008**, 13, 65.
- **Lefebvre S.**, Kosovichev A.G. and Rozelot J.P., Helioseismic *test of non-homologous solar radius changes with the 11-year activity cycle*, ApJL, 2007, 658(2), L135.
- **Lefebvre S.**, Bertello L., Ulrich R.K., Boyden J.E. and Rozelot J.P., *Solar radius measurements at Mount Wilson*, ApJ, **2006**, 649, 444.
- Rozelot J.P. and **Lefebvre S.**, *It is possible to find a solar signature in the current climatic warming?*, Physics and Chemistry of the Earth, **2006**, 31, 41.
- **Lefebvre S.** and Kosovichev A.G., *Changes in the subsurface stratification of the Sun with the 11-year activity cycle*, ApJL, **2005**, 633, L149.
- Rozelot J.P., **Lefebvre S.**, Pireaux S. and Ajabshirizadeh A., *Are non-magnetic mechanisms such as temporal solar diameter variations conceivable for an irradiance variability?*, Solar Physics, **2004**, 224, 229.
- **Lefebvre S.** and Rozelot J.P., *A new method to detect active features at the solar limb*, Solar Physics, **2004**, 219, 25.
- **Lefebvre S.** and Rozelot J.P., Solar *latitudinal distortions: from observations to theory*, A&A, **2004**, 419, 1133.
- Rozelot J.P., **Lefebvre S.** and Desnoux V., *Observations of the solar limb shape distortions*, Solar Physics, **2003**, 217, 39.
- Rozelot J.P., Godier S. and **Lefebvre S.**, *On the theory of the oblateness of the Sun*, Solar Physics, **2001**, 198, 223.

MAIN SKILLS

Astrophysics skills

⇨ Use of helioseismic data and solar models to study the subsurface stratification of the Sun
⇨ Heliodesy: measurement of the asphericty of the Sun and computation of the multipolar moment J_n
⇨ Dynamics of the Sun over the 11-year cycle
⇨ Solar forcing on the Earth climate
⇨ Effective knowledge of the PICARD and DynaMICCS teams
⇨ Data and image processing

Computer skills

⇨ *Programming language:* Matlab, IDL, C, Shell, Pascal
⇨ *Operating systems:* Windows, Linux, Unix
⇨ *Software:* MS-Office, Matlab, IDL, Maple, LateX, Prism, GMT

Communication skills

⇨ *Languages:* French (mother tongue), English (fluent in speakin, reading and writing), German (to refresh)
⇨ *Oral communication:* Seminars and international conference given in English or French.
⇨ *Written communication:* Scientific articles, research reports, posters in English or French
⇨ *Scientific animations:* Participation to Science Feast, Stars nights, Eclipse manifestations: public conference, demonstration of astronomical instruments, secretary of an astronomy club from 1995 to 1998,...
⇨ *Multimedia:* writing webpages (personal webpage, GOLF page)

Personal skills

- ⇨ Rigour and perseverance to respect objectives
- ⇨ Broad-minded and opening person
- ⇨ Like working in group, easy contact

INTERESTS AND HOBBIES

- Astrophysics, physics, géophysics, data analysis, instrumentation, scientific vulgarisation.
- Music, piano, danse (balroom danses, salsa, rock, jazz, oriental danse, Irland folklore, Belly dance).
- Travel