

# Final Program



**23-25 June 2014**

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## General Information

### 1.1 Conference Location

The Conference itself is held at



Oceanopolis  
Port de Plaisance du  
Moulin Blanc, 29210  
Brest, France  
☎ +33 2 98 34 40 40

The meeting room is in the “**Pavillon Evènementiel**”, located at the entrance of the building. Registration will start on Monday at 8.30 a.m. till 03.00 p.m. On Tuesday it will be from 8.45 a.m. - 12.30 p.m

### Getting to Océanopolis

#### By Plane:

Brest International Airport, (Tel : +33.2 98 32 86 00 - Fax : +33.2 98 32 86 03  
The is mainly linked to Paris, London, Nice, Lyon, Dublin. The primarily operator is Air France (via its subsidiary HOP!). The airport is located some 20 minutes from Brest town centre

From the airport there is a shuttle bus service to city centre.

The price of a ticket is €1.40. This allows you to travel for one hour on any Bibus route (shuttle, tramway, bus). Bibus season tickets are accepted. Tickets can be bought on board the shuttle from the conductor or on Bibus website. see further bus info below. ( Tel: +33 (0)2 98 80 30 3)

#### By Train:

The railway station of Brest, [Gare de Brest](#), is linked to Rennes and Paris. [TGV trains](#) to Paris Montparnasse take approximately four and a half hours to reach the capital. Brest station is 3km away from Oceanopolis. Take the number 3 bus ("Liberté/Océanopolis") from outside the train station/chamber of commerce.

#### By Bus:

At the back of this programme you will find the location of the conferemce bus. Departure at 8.15 on monday, if necessary we will drive to some hotels (ibis centre for instance) and certainly Ibis port.

# General Information

**ALL OTHER MAPS ARE AT THE BACK OF THIS PROGRAMME**

## 1.2 Badges

Each registrant will receive a name badge upon registration. The badge must be worn in order to be admitted to the technical sessions, lunches and social event.

## 1.3 Tickets

Extra tickets for the social event and lunches are available from the Registration desk. (**at conference prices**)

Price: (or equivalent in another currency) for extra tickets. All participants will be issued with tickets for lunch and the conference dinner. **Or just the badge will apply.**

conference dinner:	€ 55
lunch	€ 30

## 1.4 Registration

The **FOODSIM'2014** Registration Desk will be open for information and registration:

**Monday, June 23 .....8.30 a.m. to 03.00 p. m.**

**Tuesday, June 24 .....8.45 a.m. to 12.00 p. m.**

## 1.5 Conference Proceedings

Each fully paid registrant will be provided with a copy of the Conference Proceedings (printed format). (Extra copies are available on a **cash and carry** basis at special rates during FOODSIM-2014)

Price: (or equivalent in another currency) for an extra copy

FOODSIM'2014 Proceedings	€ 35
Other Proceedings –see price list at desk	

Other Proceedings can be ordered using the forms available at the conference.

## 1.6 Meeting Room

The meeting room is in the "**Pavillon Evènementiel**", located at the entrance of the building Directions to the room will be signposted.

## General Information

### 1.7 Internet Connection

There is full free WIFI at the conference site.

### 1.8 Need Help?

Please see the conference desk for your questions

### 1.9 Social Events and Lunches

**All registrants are invited:**

To the **Coffee Breaks** and the **lunches** for 2 days which will be served at



Oceanopolis  
Port de Plaisance du Moulin  
Blanc, 29210 Brest, France  
 +33 2 98 34 40 40

To the **Conference Dinner**



The conference dinner will be held on the 23rd of June in the evening at the  
La Maison de l'Océan  
2, Quai de la Douane, Brest  
Tel: +33. 02 98 80 44 84  
<http://www.restaurant-fruit-mer-brest.com/>

To the **Conference Visit**



The conference visit is scheduled for the 25th of June in the morning from 09.00 to 12.00 to the European Virtual Research Center the last day ([www.cerv.fr](http://www.cerv.fr)), More information will be available at the conference

# General Information

## 1.10 Best Paper Award

During the conference the papers, which were accepted as extended papers will be judged by the committee and participants in order to choose the best paper of the FOODSIM'2014 conference. The best paper candidate receives a certificate signed by the General Conference and Program Chairs and also a free registration to any EUROSIS conference within 2 years of receipt of the prize.

## 1.11 Paper Legend:

Each paper is designated before each paper by its number. This number has to be entered on the form for the best paper award

**The room has an LCD projector and an overhead projector**

### **SESSION CHAIRPERSONS**

#### **ALL SESSION CHAIRPERSONS IN THIS PROGRAM ARE PROVISIONAL.**

**Session Chairs** are chosen on a voluntary basis by proposals by either authors or local committee members or are appointed by the Track Chairs, General Program Chair or General Conference Chair. They are responsible for their assigned session. They make sure their speakers are available, take care of the timing within the session, chair the discussion after each presentation and introduce each speaker based on the CV's given to them by the authors. **If a session chair is not available then the first author takes on the responsibility to chair**

**Sessions with extended papers:** If you are a session chair in a session with extended papers make sure the session participants have a copy of the best paper award form and ask them to return them to you at the end of the session. After the session hand over the collected forms to Philippe Geril

**THE NUMBERS NEXT TO THE PRESENTATIONS DENOTE THE PAGE-NUMBERS IN THE PROCEEDINGS. IF NO NUMBERS ARE MENTIONED THEN THIS PAPER IS NOT PUBLISHED IN THE PROCEEDINGS**

**THE AUTHORS WHO ARE UNDERLINED ARE NORMALLY THE PRESENTERS**

**ONLY PAPERS IN GREY BOXES ARE THE EXTENDED PAPERS ELIGIBLE FOR THE BEST PAPER AWARD**

<b>MONDAY, 23<sup>rd</sup> JUNE 2014</b>	
<b>08.30-15.00</b>	<b>REGISTRATION</b>
<b>08.30-09.00</b>	<b>WELCOME COFFEE</b>
<b>09.00-09.15</b>	<b>OPENING SESSION</b>
<b>09.15-10.00</b>	<b>KEYNOTE ADDRESS BY GIREG DESMEULLES</b>
	<b>MEETING ROOM</b>
	<b>VIRTUAL REALITY SOFTWARE AND BIOLOGICAL SIMULATION WITH AN APPLICATION TO FOOD</b>
<b>10.30-12.30</b>	<b>SESSION</b>
	<b>MEETING ROOM</b>
	<b>FOOD PROCESSING AND SAFETY</b>
<b>12.30-14.00</b>	<b>LUNCH BREAK</b>
<b>14.00-15.00</b>	<b>TUTORIAL BY PASCAL BALLEST PART I</b>
	<b>MEETING ROOM</b>
	<b>EXTENSIVE FISH FARM SIMULATION</b>
<b>15.00-15.30</b>	<b>COFFEE BREAK</b>
<b>15.30-17.00</b>	<b>SESSION</b>
	<b>MEETING ROOM</b>
	<b>METHODOLOGY AND MODELLING</b>
<b>17.00-19.00</b>	<b>VISIT TO OCEANOPOLIS</b>
<b>19.30-22.00</b>	<b>CONFERENCE DINNER</b>

<b>TUESDAY, 24<sup>th</sup> JUNE 2014</b>	
<b>08.45-12.30</b>	<b>REGISTRATION</b>
<b>09.00-10.00</b>	<b>TUTORIAL BY GIREG DESMEULLES</b>
	<b>MEETING ROOM</b>
	<b>ReiSCOP A SOFTWARE TO SIMULATE BIOLOGICAL BEHAVIOUR</b>
<b>10.00-10.30</b>	<b>COFFEE BREAK</b>
<b>10.30-12.30</b>	<b>SESSION</b>
	<b>MEETING ROOM</b>
	<b>ENVIRONMENTAL FACTORS AND FOOD EXPOSURE</b>
<b>12.30-14.00</b>	<b>LUNCH BREAK</b>
<b>14.00-15.00</b>	<b>TUTORIAL BY PASCAL BALLETT PART II</b>
	<b>MEETING ROOM</b>
	<b>EXTENSIVE FISH FARM SIMULATION</b>
<b>15.00-15.30</b>	<b>POSTER SESSION</b>
<b>15.30-15.45</b>	<b>CLOSING SESSION AND BEST PAPER AWARD</b>

**WEDNESDAY, 25<sup>th</sup> JUNE 2014**

**09.00-12.00**

**VISIT TO THE VIRTUAL REALITY CENTRE**

**Monday, 23<sup>rd</sup> June 2014**

**HALLWAY**

**Registration**

**08.30 - 15.00**

**08.30 - 09.00**

**COFFEE BREAK**

**MEETING ROOM**

**09.00 – 09.15**

**KEYNOTE**

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**Opening FOODSIM'2014 and Welcome**

**Welcome Address**

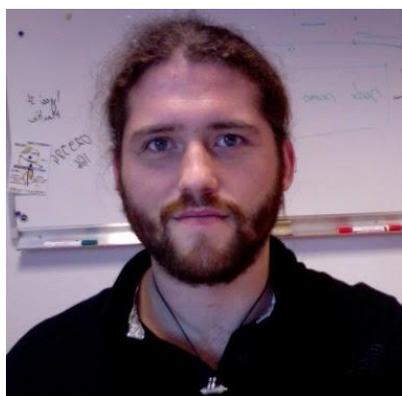
**Alain-Claude Roudot, LERCCO, UBO, Brest, France**  
**FOODSIM'2014, General Conference Chair**

**09.15 – 10.00**

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**KEYNOTE SPEECH**

**Chair: Alain-Claude Roudot, LERCCO, UBO, Brest, France**



**[Virtual Reality Software and Biological Simulation with an Application to Food](#)**

**[Gireg Desmeulles](#), European Center of Virtual Reality,  
Brest, France**

Welcome

## Monday, 23<sup>rd</sup> June 2014

10.30 – 12.30

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**MEETING ROOM -10.30-12.30**

**PROCESS**

**FOOD PROCESSING AND SAFETY**

**Chair:** Pascal Ballet, University of Brest, Brest, France

**FOOD\_ENG\_02**

**Modelling of Water Transfer in Bread during Staling**

Jean-Yves Monteau, Emmanuel Purlis, Emna Besbes, Vanessa Jury and  
Alain Le Bail..... 29

**FOOD\_ENG\_03**

**Hybrid Modelling of Cooling-Drying Process in Animal Feed-Pellets  
Industries**

Charlène Lambert, Francis Courtois, Hadyan Fibrianto, Lionel Boillereaux,  
Sandy Rouchouse and Fabrice Putier ..... 37

**FOOD\_INNOV\_01**

**Transfer of *Salmonella* during slicing of a turkey breast based product**

Guiomar Denisse Posada Izquierdo, Arícia Mara Melo Possas,  
Antonio Valero Diaz, Fernando Pérez Rodríguez  
and Rosa Maria Garcia Gimeno ..... 45

**FOOD\_QUAL\_01**

**Modeling of Shrinkage, Microbial Spoilage and Color Degradation  
occurring in Convective Drying of Vegetables**

Stefano Curcio, Vincenza Calabrò and Gabriele Iorio ..... 51

12.30 - 14.00

**LUNCH BREAK**

**MEETING ROOM**

**TUTORIAL**

14.00 – 15.00

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**Chair:** Alain-Claude Roudot, LERCCO, UBO, Brest, France

Monday, 23<sup>rd</sup> June 2014

TUT\_03 – PART I



**Extensive Fish Farm Simulation**

Pascal Ballet, University of Brest, Lab-STICC, France

**15.00 - 15.30  
COFFEE BREAK**

**15.30 – 17.00**

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**MEETING ROOM - 15.30-17.00  
METHODOLOGY AND MODELLING**

**METH**

**Chair: Jean-Yves Monteau, ONIRIS, Nantes, France**

**FOOD\_ENG\_01**

**The Use of Dimensional Analysis for Process Scale-Up and Modeling**

Chris Koh and Sean Eichenlaub..... 5

**FOOD\_METH\_01**

**Extending a Novel Class of Predictive Models to describe The Effect of pH on Microbial Growth**

Simen Akkermans, Estefanía Noriega, Filip Logist and Jan F.M. Van Impe..... 11

**FOOD\_METH\_04**

**An individual-based model for anaerobic dynamics of *Escherichia coli* colonies**

Ignace Tack, Filip Logist, Estefanía Noriega Fernández and Jan Van Impe ..... 18

Sessions - Monday

## Monday, 23<sup>rd</sup> June 2014

### CONFERENCE VISIT – 17.00-19.00



The conference visit is scheduled for the 23rd of June in the afternoon from 17.00 to 19.00 to Océanopolis itself.

More information will be available at the conference

On Monday evening, a bus will leave from Océanopolis to the restaurant at 19:00. From the restaurant to the hotel: on foot (5 minutes if you are in IBIS on the port, 15 min. if you are in the city centre)

### CONFERENCE DINNER: 19.30-22.00



The conference dinner will be held on the 23rd of June in the evening at the  
La Maison de l'Océan  
2, Quai de la Douane  
Brest

Tel: +33. 02 98 80 44 84

<http://www.restaurant-fruit-mer-brest.com/>

Tuesday, 24<sup>th</sup> June 2014

**HALLWAY**

**Registration**

**08.45 - 12.30**

**MEETING ROOM**

**TUTORIAL**

**09.00 – 10.00**

**TUT\_01**

**Chair:** Alain-Claude Roudot, LERCCO, UBO, Brest, France



**[ReISCOPE: a software to simulate biological behaviour](#)**

Gireg Desmeulles, European Center of Virtual Reality, Brest, France

**10.00 - 10.30**

**COFFEE BREAK**

**10.30 - 12.30**

**MEETING ROOM – 10.30-12.30**

**ENV**

**ENVIRONMENTAL FACTORS AND FOOD EXPOSURE**

**Chair:** Alejandra Ramirez, LERCCO, UBO, Brest, France

**FOOD\_METH\_03**

**Modeling and Simulation of Epidemics caused by Contaminated Water**

Bartłomiej Fajdek, Radosław Pytlak, Marcin Stachura

and Tomasz Tarnawski..... 59

Sessions - Tuesday

## Tuesday, 24<sup>th</sup> June 2014

### FOOD\_QUAL\_05

#### Assessing Risk for Aflatoxin Exposure through Maize Food Intake in Veracruz City (México)

Hiram Alejandro Wall-Martínez, Guadalupe del Carmen Rodriguez-Jimenes, Victor José Robles-Olvera, Miguel Angel Garcia Alvarado, Alejandra Ramirez-Martinez, Marco Antonio Salgado-Cervantes, Nathalie Wesolek, Alain-Claude Roudot and Violeta T. Pardo Sedas ..... 65

### FOOD\_SUSTAIN\_03

#### Monitoring Environmental Factors in Mekong Delta of Vietnam using Wireless Sensor Network Approach

Bao Hoai Lam, Hiep Xuan Huynh, Mahamadou Traoré, Pierre Yves Lucas and Bernard Pottier ..... 71

### FOOD\_QUAL\_04

#### Uncertainties and Variabilities Evaluation in Food Exposure Assessment

Alain-Claude Roudot..... 79

12.30 - 14.00

LUNCH BREAK

14.00 - 14.30

MEETING ROOM – 14.00-14.30

POSTER

POSTER SESSION

Chair: Alejandra Ramirez, LERCCO, UBO, Brest, France

### FOOD\_SUSTAIN\_01

#### Supercritical CO2 extraction of high added value products from peels of both organic and outsize or defective PGI citrus fruits

Vincenza Calabrò, Alessandra Meluso, Margareth Cucunato, Stefano Curcio, Silvia Mazzuca, Roberto Balducchi and Giuseppe Di Sanzo

Tuesday, 24<sup>th</sup> June 2014

14.30 - 15.30

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**MEETING ROOM – 14.30-15.30**

**TUT**

**TUT\_03 –PART II**

**Chair:** Alain-Claude Roudot, LERCCO, UBO, Brest, France



[Extensive Fish Farm Simulation](#)

Pascal Ballet, University of Brest, Lab-STICC, France

Hands-on Simulation

15.30 - 15.45

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**MEETING ROOM - 15.30-15.45**

**BEST PAPER**

**CLOSING SESSION AND BEST PAPER AWARD**

**Chair:** Alain-Claude Roudot, LERCCO, UBO, Brest, France

Sessions - Tuesday

**Wednesday, 25<sup>th</sup> June 2014**

**09.00 - 12.00**

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**CONFERENCE VISIT – 09.00-12.00**



A visit the European Virtual Research Center the last day ([www.cerv.fr](http://www.cerv.fr)), where there is a team working on biological 3D modelling and simulation.

**BEWARE – this visit is only held if enough participants take part**

# FOODSIM'2016

SEE YOU ALL  
JUNE, 2016 FOR FOODSIM'2016  
[Ghent University Global Campus](#), Incheon, South-Korea

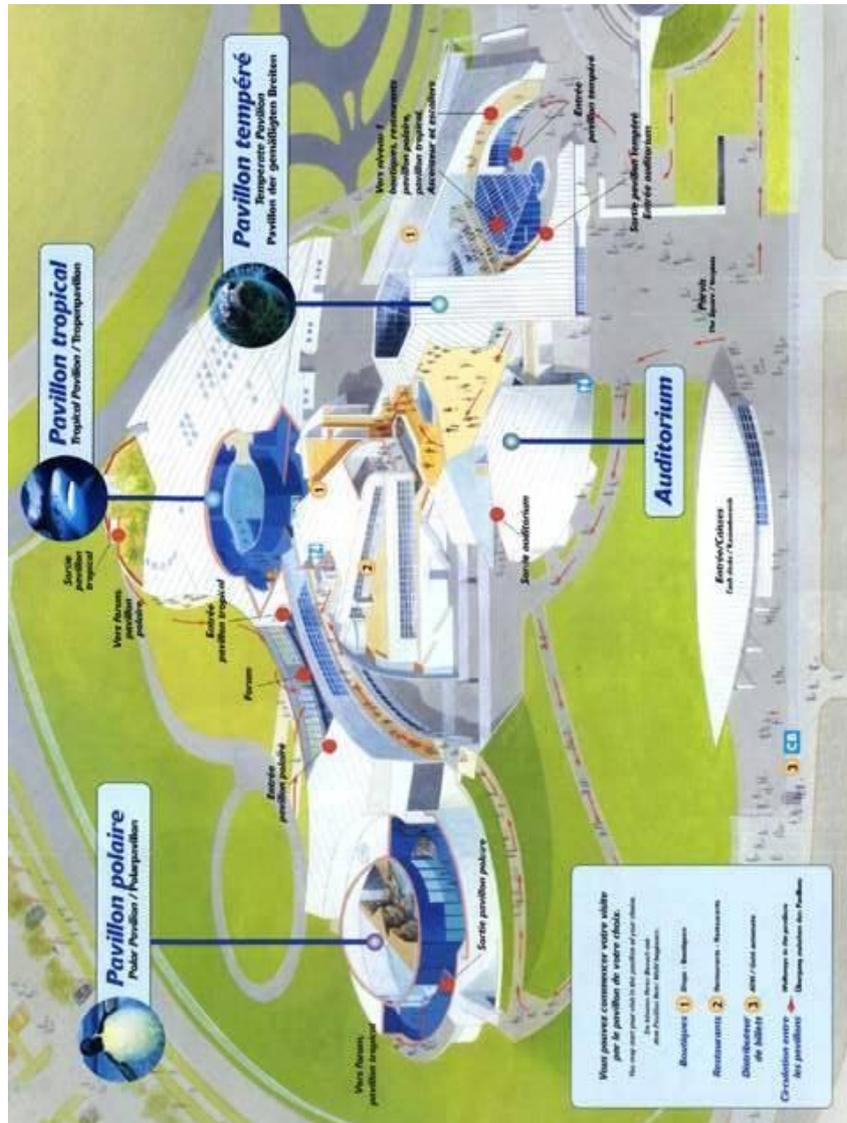


Track proposals and tutorial proposals can be sent in  
by March 30<sup>th</sup>, 2015 to [philippe.geril@eurosis.org](mailto:philippe.geril@eurosis.org)

If you are interested in hosting a FOODSIM conference, just contact EUROSIS.

# Conference Site Map

## Conference Site Map



The conference takes place in the in the  
“Pavillon Evènementiel”

# Conference Site Map

## Bus station to Oceanopolis (Special bus):



The station is located in front of the QUARTZ theater.



**See the parking location of the bus. departure at 8.15 on Monday, if necessary we will drive to some hotels (ibis ventre for instance) and certainly Ibis port.**

## NOTES

# FOODSIM'2014 Registration Form

Please legibly print or type and fill out completely. (Check appropriate boxes where necessary)

FIRST NAME	LAST NAME	M.I.
COMPANY OR AFFILIATION		
Mailing address (tick one): <input type="checkbox"/> HOME <input type="checkbox"/> BUSINESS		
STREET		
CITY		
ZIPCODE	COUNTRY	
TELEPHONE	FAX	
E-MAIL		
DATE	SIGNATURE	
1. <input type="checkbox"/> <b>EUROSIS member € 545 Member Number:</b> _____		€ _____
2. <input type="checkbox"/> <b>Members of Sponsor or Affiliate Society € 545</b>		€ _____
3. <input type="checkbox"/> <b>Non-Member Participant € 555</b>		€ _____
4. <input type="checkbox"/> <b>Students, <u>who are not authors</u> but who wish to attend the conference, or <b>ONE DAY PARTICIPANTS</b> pay: € 435</b>		€ _____
(Above registration fees include, one copy of the PROCEEDINGS, all midday meals, cocktail, refreshments, coffees and social program,) One Day Participants and Non-Author Students cannot participate in the conference dinner.		
5. <input type="checkbox"/> <b>Conference Dinner Ticket for Companion € 55</b> <input type="checkbox"/> <b>Lunch Ticket for Companion € 30/day</b>		€ _____
6. <input type="checkbox"/> <b>Extra Conference Proceedings € 35 Cash and Carry</b>		€ _____
VAT Number if applicable: _____		
<b>TOTAL AMOUNT DUE</b>		€ _____
		€ _____
<b><u>ADD BANK CHARGE of € 15 in case you pay by BANK or CHEQUE.</u></b>		€ _____
<b>TOTAL AMOUNT REMITTED</b>		€ _____

- [1] 1) Make payment by **BANK TRANSFER** to account **IBAN CODE: BE03 0014 0814 7784** EUROPEAN TECHNOLOGY INSTITUTE, ETI Bvba, BNP PARIBAS FORTIS BANK, Torhoutsesteenweg 356, B-8400 Ostend, Belgium, **SWIFT CODE: GEBABEBB MENTION YOUR NAME and FOODSIM'2014**
- [1] 2) Or pay by **CHEQUE** and send it to Philippe Geril, EUROSIS-ETI, European Simulation Office, Greenbridge Science Park, Ghent University – Ostend Campus, Wetenschapspark 1, Plassendale 1, B-8400 Ostend, Belgium.
- [1] 3) Or pay by **CREDIT CARD** and fill in the information below:  
 Charge my (tick one):  Visa  Euro/Mastercard  American Express  
 CARD NO: \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ EXP.DATE: \_\_\_\_ / \_\_\_\_

Authorizing Signature:

Print Signature in CAPITALS

# eurosis

EUROSIS was borne out of discussions with the European Community to set up a new kind of Society, which would be project driven instead of driven by pure membership and conferences.

The aim of EUROSIS is to set up topic related Technical Committees which will link directly to European Projects in the field of computer simulation and related areas and to act as a knowledge pool for future European Networks of Excellence, like MOSAIC.

If you would like to receive more information about EUROSIS, please contact

**Philippe Geril**  
**EUROSIS-ETI**  
**European Simulation Office**  
**Greenbridge Science Park**  
**Ghent University – Campus Ostend**  
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B- 8400 Ostend, Belgium  
 Tel: +32.59.255.330  
 Fax: +32.59.255.339  
 **Email: Philippe.Geril@eurosis.org**

Please send me info on EUROSIS:

Name: .....

Address: .....

.....

.....

Telephone.....

Fax: .....

Email: .....