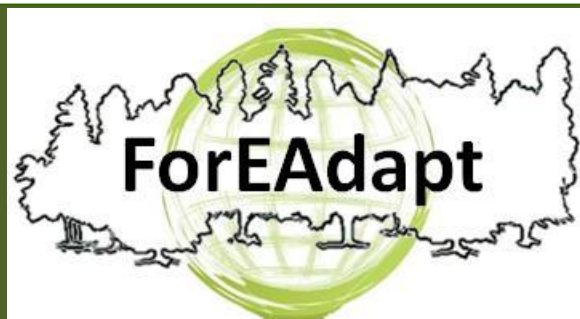


**Tackling climate change. Tours, France. 21 - May 2012**



**Full Title:** Knowledge exchange between Europe and America on forest growth models and optimisation for adaptive forestry

Coordinator : Jordi Garcia-Gonzalo (ISA, PORTUGAL)

<http://www.isa.utl.pt/cef/pub/foreadapt/>



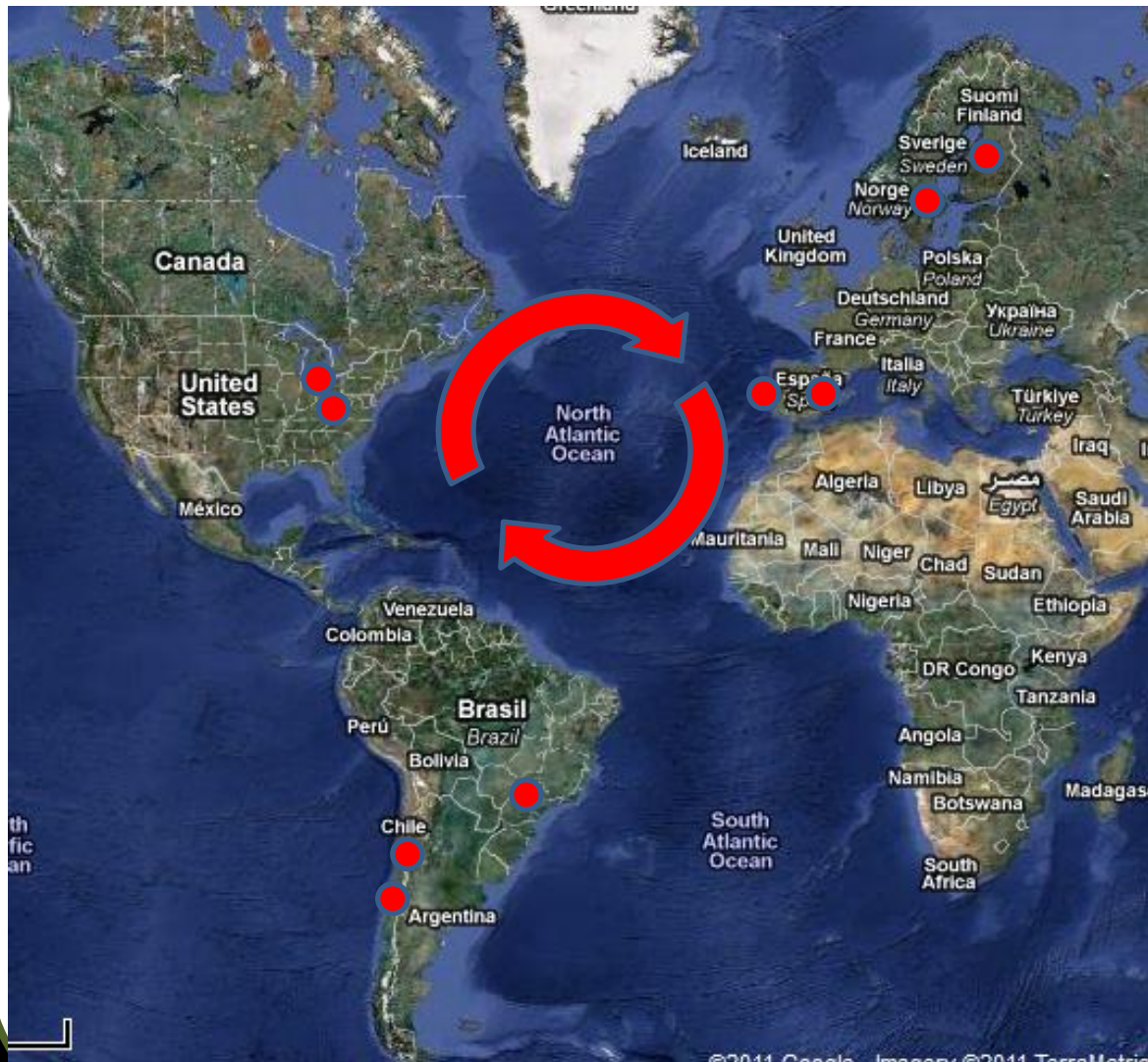
**SEVENTH FRAMEWORK PROGRAMME**

**Marie Curie Actions**

People: International Research Staff Exchange Scheme Call: FP7-PEOPLE-2010-IRSES



# ForEAdapt



- 🌐 The project is based on a 4 year exchange programme (Feb 2011- Feb2015)
- 🌐 9 institutions from 7 countries: Chile, Brazil, USA, Finland, Sweden, Spain and Portugal
- 🌐 European researchers must travel to Brazil, Chile or USA
- 🌐 50 researchers for periods ranging from 1 to 12 months

# Partners

Partner Number	Partner name	Partner short name	Country
1 Beneficiary	Instituto Superior de Agronomia	ISA	Portugal
2 Beneficiary	Swedish University of Agricultural Sciences	SLU	Sweden
3 Beneficiary	University of Eastern Finland, Faculty of Sciences and Forestry	UEF	Finland
4 Beneficiary	Technical University of Madrid	UPM	Spain
5 Beneficiary	University of Chile, Department of Industrial Engineering	DII	Chile
6 Beneficiary	Pontificia Universidad Católica de Chile Departament of Forest Sciences	PUC	Chile
7 Beneficiary	University of São Paulo, Luiz de Queiroz College of Agriculture	USP ESALQ	Brazil
8 Partner	Pennsylvania State University, School of Forest Resources	PSU SFR	United States of America
9 Partner	Virginia Polytechnic Institute and State University College of Natural Resources	VT	United States of America

*Table 1. Summary of the exchange program for the whole project period (4 years)*

Origin patner	Origin country	Hosting institution									Total Researchers	Total months
		ISA	SLU	UEF	UPM	DII	PUC	USP	SFR	VT		
ISA	Portugal	-	x	x	-	12	14	29	23	9	11	<b>87</b>
SLU	Sweden	-	-	-	-	10	-	-	12	-	4	<b>22</b>
UEF	Finland	-	-	-	-	2	-	2	2	-	3	<b>6</b>
UPM	Spain	-	-	-	-	4	-	6	4	-	4	<b>14</b>
DII	Chile	12	6	6	24	-	-	-	-	-	8	<b>48</b>
PUC	Chile	8	2	2	9	-	-	-	-	-	6	<b>21</b>
USP	Brazil	18	6	12	12	-	-	-	-	-	8	<b>48</b>
SFR	USA	3	1	1	1	-	-	-	-	-	1	<b>4</b>
VT	USA	4	2	1	-	-	-	-	-	-	4	<b>7</b>
												<b>257</b>

- 🌐 50 researchers (early stage and senior) participate in the exchanges (periods ranging from 1 to 12 months)

# AIMS

Knowledge exchange between partners to contribute to:

- 🌐 Understand physiological responses related to climate change
- 🌐 Enhance ability to predict future forest conditions (forest models)
- 🌐 Improve and develop new methods for planning under risk and uncertainty (optimization)
- 🌐 Improve and develop new DSS for adaptive management (DSS)
- 🌐 Better assess forest management strategies under scenarios of climate change

# WORK PACKAGES

Table 1. List of work packages and participating institutions

WORK PACKAGE (WP)	TITLE	INSTITUTION
1	Forest Models	ISA, UEF, PUC, USP, SFR, VT
2	Optimization	ISA, SLU, IEF, UPM, DII, PUC, USP, SFR
3	Decision Support Systems	ISA, SLU, UEF, UPM, DII, USP



# AIMS

Table 5. Participants in ForEAdapt programme (underlined the head of each topic at each institution)

Member	Forest modelling	Optimisation	DSS
ISA	<u>Margarida Tomé</u> , José Tomé, Luis Fontes, Ane Zubizarreta-Gerendian, Susana Barreiro	<u>José G. Borges</u> , Jordi Garcia-Gonzalo, Brigitte Botiquim, Susete Marques, Alexandra Marques	<u>Jordi Garcia-Gonzalo</u> José G. Borges, João Palma, Susana Barreiro
SLU		<u>Ola Eriksson</u> , Karin Öhman, Eva-Maria Nordström, Peder Wikström	<u>Tomas Lämås</u> , Ola Eriksson, Anu Hankala, Malin Nilsson, Peder Wikström, Erik Wilhelmsson
UEF	<u>Lauri Mehtätalo</u> , Heli Peltola, Seppo Kellomäki	<u>Timo Pukkala</u> , Lauri Mehtätalo, Tero Heinonen	<u>Tero Heinonen</u> , Petteri Packalen, Timo Pukkala, Heli Peltola
UPM		<u>Carlos Romero</u> , Luis Diaz-Balteiro	<u>Carlos Romero</u> , Luis Diaz-Balteiro
DII		<u>Andres Weintraub</u> , Rafael Epstein and other Doctorates and Post-Doctorates to be defined	<u>Andres Weintraub</u> , Rafael Epstein and other Doctorates and Post-Doctorates to be defined
PUC	<u>Maria Paulina Fernández</u> , Horacio Gilabert and Doctorates to be defined	<u>Horacio Gilabert</u> , and Doctorates and Post-Doctorates to be defined	
USP	<u>Hilton Thadeu Zarate do Couto</u> , João Luis Ferreira Batista, Luiz Carlos Estraviz Rodriguez	<u>Luiz Carlos Estraviz Rodriguez</u> , Fernando Seixas, Sílvio Frosini de Barros Ferraz, Jefferson Lordello Polizel	<u>Luiz Carlos Estraviz Rodriguez</u> , Demóstenes Ferreira da Silva Filho, Sílvio Frosini de Barros Ferraz, Jefferson Lordello Polizel
SFR	<u>Marc McDill</u>	<u>Marc McDill</u>	<u>Marc McDill</u>
VT	<u>Harold Burkhardt</u> , Thomas Fox, Randolph Wynne, Gwenlyn M. Busby	<u>Harold Burkhardt</u> , Gwenlyn M. Busby	<u>Harold Burkhardt</u> , Thomas Fox, Randolph Wynne

# Forest Modelling WP1

**Partners participating:**

ISA, UEF, PUC, USP, SFR, VT

**Objectives:**

Improve or develop process-based models to support adaptive forest management to take into account climate change.

Develop models for non-wood products and services

Develop models to predict wood properties under different conditions

Model the risk occurrence and effect of insects and diseases outbreaks, fires or storms

Develop strategies for models and/or simulators to predict environmental indicators

Develop strategies for models and/or simulators to predict social indicators

Develop models for clonal forests



# Optimization WP2

Partners participating:	ISA, SLU, UEF, UPM, DII, PUC, USP, SFR, VT
Objectives:	
Develop strategic and multiple-objective stand-level management planning models that address risk and uncertainty.	
Develop strategic, multiple-objective forest management planning models that address global change scenarios.	
Integrate optimization methodologies for the effective allocation of inventory resources and sustainable management of privately owned forests.	
Develop spatial forest management optimization models that integrate timber supply and environmental objectives in a context of market and climate change.	
Develop operations research approaches to optimize operational forest management problems.	

# Decision Support System WP3

Partners participating:	ISA, SLU, UEF, UPM, DII, USP, SFR, VT
Objectives:	
Evaluation of existing DSS and their potential use in different countries	
Develop DSS to cope with climate change (e.g incorporating process based models)	
Integrate operations research and computer science approaches to optimize forest management scheduling and supply chain management	
Develop and integrate tools to create Interactive Decision Maps that facilitate the analysis of trade-offs for multiple-criteria decision problems	

# Outputs

- In general terms the project has achieved most of its objectives and technical goals.
- 75% of the planned visits for 2011 were performed.
- Up to now 18 visits have been performed totaling 40 person months (out of 55 months planned).
- 9 out of 18 of the visits correspond to early stage researchers.
- 11 publications are being prepared (some of them already published or in print).



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