ReSIST: Resilience for Survivability in IST

A European Network of Excellence

Contract Number: 026764

Deliverable D15: Summer School programme

Report Preparation Date: June 2007
Classification: Public
Contract Start Date: 1st January 2006
Contract Duration: 36 months
Project Co-ordinator: LAAS-CNRS
Partners: Budapest University of Technology and Economics
City University, London
Technische Universität Darmstadt
Deep Blue Srl
Institut Eurécom
France Telecom Recherche et Développement
IBM Research GmbH
Université de Rennes 1 – IRISA
Université de Toulouse III – IRIT
Vytautas Magnus University, Kaunas
Fundação da Faculdade de Ciencias da Universidade de Lisboa
University of Newcastle upon Tyne
Università di Pisa
QinetiQ Limited
Università degli studi di Roma "La Sapienza"
Universität Ulm
University of Southampton

This Summer School is part of the Activities planned to raise the awareness about Resilience in the professional and academic communities and to disseminate the first ReSIST results. It will introduce young researchers and junior engineers to the Resilience discipline, showing how to design, verify and evaluate resilient systems.

The school is organised in four main tracks:

- Introduction to Resilience, presenting the basic concepts of Resilience.
- How to build Resilience, dealing with the basic theoretical aspects of designing, verifying, and evaluating Resilience.
- Resilience in practice, providing the point of view of practitioners from different industrial domains.
- Perspectives of Resilience, addressing gaps and future challenges in Resilience.

The presentation will be largely based on the content of two of the ReSIST Deliverables, D12: State of Knowledge on Resilience Building Technologies, and D13: From Resilience-building to Resilience-scaling: directions. To complement the results of the ReSIST Deliverables, and to expose the students to different points of view, particular attention has been given to the involvement of practitioners and academic who are external to the ReSIST Consortium, especially but not only, for the track dedicated to Resilience in practice. For this reason almost half of the lectures will be given by invited speakers not members of ReSIST.

The school is mainly focussed on young researchers and junior engineers, in particular, the main target audience includes:

- technical, system and cognitive engineers; human factor specialists; safety specialists; project managers; consultants from industries and companies with an interest in the Resilience discipline;
- doctorate students in information and communication technology, computer science, engineering, and cognitive science with an interest in the Resilience discipline.

The whole Network collaborated to the organisation of the school, that will have as director Alberto Pasquini (Deep Blue), as deputy-directors Marc Dacier (Institut Eurecom), and Istvan Majzik (Budapest University of Technology and Economics), and as coordinators: Karama Kanoun and Jean-Claude Laprie (LAAS-CNRS)

The remainder of the deliverable gives the Summer School flyer, and its detailed programme.

ReSIST Summer School

Resilience for Survivability in Information Society Technologies

A European Network of Excellence

Resilience
In Computing Systems and Information Infrastructures
– from Concepts to Practice –

24th-28th September 2007, Porquerolles, France

Top experts from academia and industry share their knowledge and experience on strategies, processes, techniques, and tools

PROGRAMME

Day 1, afternoon

Introduction to resilience

- **Resilience: an essential property for the sustainability of computing systems and infrastructures**
  Jean-Claude Laprie
  ReSIST Coordinator
  Directeur de Recherche CNRS at LAAS-CNRS, France
- **The human role in ensuring and improving resilience**
  Alberto Pasquini
  Chief Technical Officer, Deep Blue, Italy

Mornings, days 2, 3, and 4

How to build resilience

- **Architectural, paradigmatic, and algorihmic issues in resilience**
  Paulo Verissimo
  Director of LASIGE, University of Lisbon, Portugal
- **Checking models, proving programs, and testing systems**
  Marie-Claude Gaudel
  Professor at University of Paris-Sud, France
- **Resilience evaluation with regard to accidental and malicious threats**
  Mohamed Kaâniche
  Chargé de Recherche CNRS at LAAS-CNRS, France

Afternoons, days 2 and 4

Resilience in practice

- **A practitioner point of view about Resilience in ubiquitous systems**
  Michele Morganti
  Senior Vice-President, Siemens Communications Italy
- **SESAR safety: an overarching Safety Management process in Air Traffic Management**
  Oliver Sträter
  Eurocontrol Heaquarters, Belgium
- **RATP safety approach for railway signalling systems**
  Pierre Chartier
  Head of System Qualification, RATP, France
- **Security and complexity in networks**
  Michael Behringer
  Distinguished Engineer, CISCO Systems, France

Day 5, morning

Perspectives of resilience

- **Gaps and future challenges in resilience**
  Panel session, moderator:
  Michel Banâtre
  Directeur de Recherche INRIA at IRISA, France
- **Final reflections on resilience**
  Tom Anderson
  Professor at Newcastle University, UK

Location
IGeSA Resort and Conference Centre
Porquerolles Island

Detailed information and registration
www.resist-noe.org/summerschool.html
Advance registration deadline: 20th July

www.resist-noe.org/summerschool.html

Resilience for Survivability in IST

A European Network of Excellence

Information Society Technologies

ReSIST Summer School

Resilience
in Computing Systems and Information Infrastructures
— from Concepts to Practice —

24th-28th September 2007,

Porquerolles, France

Topic

Resilience is the discipline studying how a system can resist to, and survive the effects of faults, interaction mistakes, or malicious attacks and disruptions. Resilience is essential especially for those ubiquitous computing systems that are elements of large, ever evolving networks of computer and mobile devices, in Ambient Intelligence. This summer school will provide basic elements, contextual information and examples on resilience from the multidisciplinary domains of dependability, security and human factor.

Target audience

The target audience for the summer school includes:

- technical, system and cognitive engineers; human factor specialists; safety specialists; project managers; consultants from industries and companies with an interest in the resilience discipline;
- doctorate students in information and communication technology, computer science, engineering, and cognitive science with an interest in the resilience discipline.

Participation of doctorate students to the Summer School will be considered as relevant training activity in their curriculum. The Scientific Direction of the School proposes an average crediting 3 ECTS that must be agreed by the student, who intends to participate, with his/her local College of Doctorate of his/her University.

Objective

The objective of the summer school is to introduce the target audience to the concept of resilience, showing how to design, verify and evaluate resilient systems. Basic concepts and theoretical information will be complemented, providing practical examples of resilience problems, solutions, and best practices from several industrial domains, and outlining the more promising research initiatives in the area, and their potential results.

Organisers

The summer school is organised by the Resilience for Survivability in IST (ReSIST) Network of Excellence, under the sponsorship of the European Union.

School director: Alberto Pasquini (Deep Blue)
School deputy-directors: Marc Dacier (Institut Eurecom), and Istvan Majzik (Budapest University of Technology and Economics)
School coordinators: Karama Kanoun and Jean-Claude Laprie (LAAS-CNRS)

Programme

The School programme is based on four sessions, described in detail hereafter:

- Introduction to resilience
- How to build resilience
- Resilience in practice
- Perspectives of resilience

INTRODUCTION TO RESILIENCE- The first session will address the introductory aspects of the school. This session will consist of three lectures. The first will last 60 minutes and will be dedicated to organisational aspects of the school; the other two, lasting 90 minutes each, to the basic introductory concepts of resilience.

Lecture	Lecturer	Abstract
Introduction: aims and organisation of the school	Alberto Pasquini *Deep Blue, Italy*	This lecture will be based in two parts. The first one will present the aims, structure and practical organisational aspects of the school. The second will be dedicated to a quick presentation of the coming school lectures.
Resilience: an essential property for the sustainability of computing systems and infrastructures	Jean-Claude Laprie *LAAS-CNRS, France*	Resilience is the persistence of delivery of justifiably trusted service in the presence of evolutionary changes. The changes can be planned, predictable, or totally unforeseen. The lecture will first focus on the relationship of resilience with dependability and security, emphasizing the impact of the evolutions of sources of failures, be they accidental or malicious, on the approaches to defend against them. Then the rationale of ReSIST will be presented, as well as its major achievements to date.
The human role in ensuring and improving resilience	Alberto Pasquini *Deep Blue, Italy*	This lecture will introduce the concept of socio-technical systems, that is, the systems whose resulting performances are the outcome of a close interaction between a human, and a technological component, sometimes with the support of procedures and rules, that regulates the interactions between different components and between components and the external world. The lecture will then present the available methods for understanding, analysing, and modelling socio-technical systems and for evaluating and improving resilience in socio-technical systems.

HOW TO BUILD RESILIENCE - The second session will address basic aspects of resilience building:

- Resilience Design;
- Resilience Verification;
- Resilience Evaluation.

This session will be largely based on the material contained in the ReSIST Deliverable *State of Knowledge on Resilience Building Technologies*. The session will include three lectures, each one lasting three hours, in the mornings from Tuesday to Thursday.

Lecture	Lecturer	Abstract
Architectural, paradigmatic and algorithmic issues in Resilience	Paulo Verissimo *University of Lisbon, Portugal*	This lecture will provide the basis for the design of resilient systems as a whole. It will focus on the architectural, paradigmatic and algorithmic issues that make a computerized system be resilient, analysing the aspects of computer system design that contribute to correct/safe control in spite of threats.
Checking models, proving programs, and testing systems	Marie-Claude Gaudel *University of Paris-Sud, Orsay, France*	Verification and Validation of computerised systems rely on numerous methods. This lecture will focus on three of them: model-checking, program proving and system testing. First, the principles of these methods will be reminded. Then some overview of their current possibilities on different types of systems and properties will be given. In a last part, some interactions of these methods will be discussed: model-checking can be used as tool for generating test cases; testing and proving can be used in a complementary way. The conclusion will discuss the use of these methods in an integrated Verification and Validation process.
Resilience evaluation with regard to accidental and malicious threats	Mohamed Kaâniche *LAAS-CNRS, France*	This lecture will present: 1) the main concepts and techniques that are commonly used to evaluate the dependability and security of computing systems and 2) the state of knowledge and research challenges in this field. Both accidental and malicious threats will be addressed, considering model-based and experimental evaluation approaches. Examples of applications and case studies will be presented for illustration.

RESILIENCE IN PRACTICE - The third session will provide the point of view of practitioners from different industrial domains. This session will include four lectures. Each lecture will describe the characteristics of a specific industrial domain, with emphasis on the resilience problems that are specific of that domain. The lectures will continue presenting the experience in each specific industrial domain in the form of one or more examples, best practices, success and/or failure stories about resilience. These lectures will be in the afternoon of Tuesday and Thursday, and last 90 minutes each.

Lecture	**Lecturer**	**Abstract**
A practitioner point of view about Resilience in ubiquitous systems	Michele Morganti *Siemens Communications Italy*	This lecture will describe the characteristics of the telecommunication domain with regard to Resilience, with specific reference to ubiquitous systems. Description of best practices, and real success and failure stories will provide concrete examples about Resilience in Telecommunications.
SESAR safety: an overarching Safety Management process in Air Traffic Management	Oliver Sträter *Eurocontrol, Belgium*	The lecture will describe the specific resilience needs and challenges of Air Traffic Management, through a set of examples.The lecture will continue describing the overall solutions that are envisaged in SESAR, the new Single European Sky ATM Research Programme, that will lead to the ATM Organisation of 2020.
RATP safety approach for railway signalling systems	Pierre Chartier *RATP, France*	From the very first safety-critical software in the railway world with SACEM for RER A put into service in 1989, to today's metro lines modernisation program including metro line 1 automation, we will explain how RATP has coped with the difficulty of demonstrating safety of software systems. In particular, we will illustrate the contribution of formal methods like B or SCADE to demonstrate software safety and we will show different kinds of computer architectures like the coded processor able to run safely critical software in the railway context.
Security and complexity in networks	Michael Behringer *CISCO Systems, France*	Today's networks and applications are becoming increasingly complex, to match growing demand for new applications. This has two consequences: first, security measures need to adapt, and are also becoming more complex; second, it becomes harder to manage and maintain the increasing complexity. This lecture discusses these issues in more detail, and ways forward to cope with increasing complexity.

PERSPECTIVES OF RESILIENCE - The fourth and last session will address the future perspectives in Resilience. This will be done through a panel with the speakers and the students for discussing of gaps and future challenges of resilience and a presentation, both lasting 90 minutes. Both will last 90 minutes and run during the last day of the school. They will be based on the ReSIST deliverable *From resilience-building to resilience-scaling: directions*.

Lecture	**Lecturer**	**Abstract**
Panel session: gaps and future challenges in Resilience	Moderator: Michel Banâtre *Directeur de Recherche INRIA, IRISA, France*	The Panel will be dedicated to the investigation of gaps and future challenges in Resilience and will run in close interaction with the participants.
Final reflections on Resilience	Tom Anderson *University of Newcastle, UK*	What do we want with regard to IT based systems (and networks of them)? We want safety, for ourselves and others; security of information; systems that deliver *dependable* service. And we want this from systems that are *resilient*: to the impact of change, to inevitability of flaws, and to the attacks of the wicked. It's a demanding requirement, and poses a tremendous challenge. This concluding lecture offers a few observations and hopes for the future.

Schedule

Sunday evening dinner: 19:00-20:00

	Monday	Tuesday	Wednesday	Thursday	Friday
8:45-10:15		Architectural, paradigmatic and algorithmic issues in Resilience	Checking models, proving programs, and testing systems	Resilience evaluation with regard to accidental and malicious threats	Panel session: gaps and future challenges in Resilience
10:15-10:45		Coffee Break	Coffee Break	Coffee Break	Coffee Break
10:45-12:15		Architectural, paradigmatic and algorithmic issues in Resilience (cont.)	Checking models, proving programs, and testing systems (cont.)	Resilience evaluation with regard to accidental and malicious threats (cont.)	Final reflections on Resilience
12:15-13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:00-14:00	Break	Break	Excursion to Port-Cros island	Break	
14:00-15:00	Introduction: aims and organisation of the school				
15:00-16:30	Resilience: an essential property for the sustainability of computing systems and infrastructures	A practitioner point of view about Resilience in ubiquitous systems		RATP safety approach for railway signalling systems	
16:30-17:00	Coffee break	Coffee break		Coffee break	
17:00-18:30	The human role in ensuring and improving resilience	SESAR safety: an overarching Safety Management process in Air Traffic Management		Security and complexity in networks	
18:30-19:00	Break	Break		Break	
19:00-20:00	Dinner	Dinner	Banquet (20:00 -)	Dinner	

Location

Hôtel club IGeSA
Rue de la Douane
Iles de Porquerolles
83400 Hyères
Phone: +33 494 123 180

IGeSA is 5 min walking distance from the pier.

Registration fees

All amounts are VAT included

	Before 20th July	After 20th July
Regular registration (single room*)	1200 €	1350 €
Student registration (twin room**)	1000 €	1150 €
Accompanying person***	540 €	640 €
Additional day (single room)****	100 €	110 €
Additional day (twin room / person)****	90 €	100 €

(*) This fee includes attendance to the Summer School, full board accommodation in a single room and coffee breaks from Sunday 23rd dinner (served at 19h) until Friday 28th afternoon, excursion to Port-Cros Island and banquet on Wednesday.

(**) This fee includes attendance to the Summer School, full board accommodation in a twin room (shared with a student, or with an accompanying person) and coffee breaks from Sunday 23rd dinner (served at 19h) until Friday 28th afternoon, excursion to Port-Cros Island and banquet on Wednesday.

(***) This fee includes full board accommodation in a room shared with the accompanied person (who pays the fee of a regular single room or a student twin room) and coffee breaks from Sunday 23rd dinner (served at 19h) until Friday 28th afternoon, excursion to Port-Cros Island and banquet on Wednesday.

(****) Subject to availability.

The summer school participants will be given copies of the slides presented by the lecturers, and of supporting material (e.g., articles) when available.

Registration form is at the end of this document.

Registration without payment or purchase order cannot be considered.
Please make sure your name is clearly mentioned with your payment.

Biodata of the lecturers

Tom Anderson obtained his PhD in Computing Science from the University of Newcastle upon Tyne in 1972. He then joined the staff of the University's Computing Laboratory as a Research Associate working on the development of recovery blocks and multi-level recovery. He spent 1978-79 at NASA Langley Research Center in Virginia investigating fault tolerance for flight software, and then became first a Lecturer, and then Professor of Computing Science at Newcastle. From 1980 onwards he has acted as Principal Investigator for a series of major research projects, including a major experimental evaluation of software fault tolerance techniques and a ten-year project on dependable avionic systems. From 1992-97 he was Head of Department

for Computing Science; from 1998-2002 he was Dean of the Faculty of Science. Tom has more than 60 publications between papers in international journals and conference proceedings, books and books chapters.

Michel Banâtre got his "Thèse d'Etat" degree in 1984. Since 1986 he has a "Directeur de recherche" position at INRIA. Between 1982 and 1995 He got a strong experience in the design of fault tolerant multiprocessor architectures and fault tolerant distributed systems based on stable storage technology. Then he was involved in the design of multimedia services with Quality of Service (QOS): a reliable VOD server in cooperation with Thomson Multimedia and an electronic newspaper service in cooperation with Ouest-France (the biggest daily newspaper in France). This service has been generalised in order to integrate user mobility (ECC FollowMe project). He is currently leading the ACES (Ambient Computing and Embedded Systems) INRIA research group working on embedded systems, Spontaneous Information Systems based on Short Distance Wireless (SDW)technology, context aware services and Java based operating system for PDA. These research activities are strongly connected with industry partners such as Texas Instruments, Alcatel, and end-users. These researches are also supported by grants from ECC. Michel Banâtre has over 70 publications and patents in the areas of programming languages, distributed systems, fault tolerant architectures, multimedia information systems and context-aware information systems based on SDW technologies.

Michael Behringer works at Cisco Systems as a distinguished engineer, focusing on service provider core and security topics, such as Multiprotocol Label Switching (MPLS) security, Next Generation Networking (NGN) security and denial of service attack prevention. Prior to joining Cisco, he worked at the European service provider DANTE, responsible for the design and implementation of DANTE's pan-European networks.
Michael holds a diploma in computer science. He is an active member of the Internet Engineering Task Force (IETF) and has published several papers, RFCs and a book on MPLS Virtual Private Network (VPN) security.

Pierre Chartier is Head of System Qualification in Railway System Engineering Unit at Paris Mass Transit Authority (RATP). In this position, he manages the safety assessment of railway systems on all phases from system definition to system commissioning including software and hardware development. Until 2006, he led the Software Qualification Laboratory in charge of safety-critical software assessment of railway systems for three years. Prior to this assignment, he was responsible for methods and tools for safety-critical software while being involved in several software assessments for other three years. His interests included especially formal methods (B method, SCADE) and safe computer architectures (coded processor, 2oo2 and 2oo3 redundant architectures). The five years before, he was engaged in research on formal methods and formal proofs in connection with the METEOR project, interspersed with a 16 months visit to Cambridge Computer Laboratory (UK). He received a Master's degree in mathematics in 1993 and a post graduate qualification in computer science in 1994 from Paris VII University. He is still involved in research projects, especially PROOFER which aims at formally proving system safety properties on computerised interlocking systems. He is currently member of the CENELEC experts group for the revision of the EN50128 standard.

Marie-Claude Gaudel was appointed as a professor at the University of Paris-Sud at Orsay in 1984. Before joining UPS, she was a researcher at INRIA, and then in charge of the Software Engineering group at the industrial research center of Alcatel-Alsthom (Marcoussis, France). Her research interests are in the areas of software: formal methods, program robustness, testing and certification. She got an Outstanding Paper Award of the IEEE Chapter of Software Engineering for the work of her group on program robustness in Marcoussis. She is Doctor Honoris Causa of EPFL, and she got the CNRS Silver Medal in 1996 for her work on software testing.

Jean-Claude Laprie is "Directeur de Recherche" at CNRS, the French National Organization for Scientific Research. He joined LAAS-CNRS in 1968, where he founded the research group on Fault Tolerance and Dependable Computing in 1975, that he directed until he became Director of LAAS, in 1997 (up to the end of his term of office, in december 2002). His research has focused on dependable computing since 1973, and especially on fault tolerance, on dependability evaluation, subjects on which he has authored and coauthored more than 100 papers, as well as coauthored or edited several books. He has also been very active in the formulation of the basic concepts of dependability, the views developed being widely adopted by the scientific community. He has been very active in the international community, and he is currently a vice-president of IFIP, the International Federation for Information Processing. He is the coordinator of the European Network of Excellence ReSIST (Resilience for Survivability in Information Society Technologies). He received in 1993 the Silver Medal of the French Scientific Research, and in December 2002 the French National Merit Medal.

Mohamed Kaâniche is Chargé de Recherche at CNRS, the French National Organization for Scientific Research. He joined LAAS-CNRS in 1988 as a member of the research group on Dependable Computing and Fault Tolerance. From March 1997 to February 1998, he was a Visiting Research Assistant Professor at the University of Illinois at Urbana Champaign, USA. His research activities focus on the dependability and security evaluation of fault-tolerant computing systems and critical infrastructures based on analytical modeling and experimental measurement approaches. He has (co)authored more than 60 papers on these subjects in international journals and conference proceedings. He has participated and contributed to several national and European research projects and networks of excellence such as PDCS, DeVa, DSoS, CRUTIAL, HIDENETS and ReSIST, and he has served on numerous programme and organisation committees of international conferences. He was the Programme co-chair of PRDC-2004 and Programme Chair of EDCC-5.

Michele Morganti graduated in Electronic Engineering and Computer Science from the Politecnico of Milano in 1973. After nine years with the Electronic Switching Division of Telettra, in 1983 he joined Italtel where from 1987 through 1999 he was in charge of Corporate Research. In november 1999 he joined Siemens ICN, first as Chief Technical Officer and then as responsible for Mobile Solutions. From april 2001 through february 2003 he was in charge of Strategic Marketing and Business Excellence for the Siemens group in Italy. He is now Senior Vice President for Technology Innovation at Siemens Communications Italy. An active member of several international professional organization including the IEEE Computer and Communications Societies, IFIP and FITCE, he has published over 50 papers on various aspects of telecommunications, computers and computer networking and has contributed to numerous conferences and publications worldwide.

Alberto Pasquini is a safety analysis expert with a full University degree in Electronic Engineering, and more than 20 years of experience in the safety domain, in several industrial areas including nuclear and transportation.. His research interests are on dependability of interactive systems, software and human reliability, in these areas he has been involved as partner or coordinator in several international collaborative projects.. He has more than 60 publications in International journals, books, and Conference proceedings. He is or has recently been member of the Programme Committee of several international Conferences. He is currently with Italian Agency for Environment Energy and New Technology and with Deep Blue, an Italian research and consultancy company operating the areas of human factor, safety and validation.

Oliver Sträter studied engineering psychology and worked for GRS (Gesellschaft für Anlagen- und Reaktorsicherheit), part of the German Nuclear Regulatory Body, from 1992 till 2002. At GRS he developed methods for incident investigation and reliability assessment regarding the human impact on the safety of nuclear installations. During this work he performed his Ph.D. on evaluation of operational experience regarding human reliability together with the Institute of Ergonomics of the University of Technology Munich. From 1999 to 2002 he was assistance Professor at the Institute of Ergonomics. From 2001 he moved to EUROCONTROL, the European Organization for the Safety of Air Navigation, where he developed methods and tools for dealing with Human automation issues in European Air Traffic Management within the SHAPE project (Solutions for Human Automation Partnership in European ATM). In 2003 he became member of the German Nuclear Safety Commission. Since 2004 he is working for the development of the long term safety strategy of Air Traffic Management in the context of SESAR. He recently published: Cognition and safety - An Integrated Approach to Systems Design and Performance Assessment.

Paulo Veríssimo is professor of the Department of Informatics (DI) of the University of Lisboa Faculty of Sciences, and Director of LASIGE, a research laboratory of the DI. He belongs to the European Security & Dependability Advisory Board, and is associate editor of the IEEE Transactions on Dependable and Secure Computing. He is past Chair of the IEEE Technical Committee on Fault Tolerant Computing and of the Steering Committee of the DSN conference, and belonged to the Executive Board of the CaberNet European Network of Excellence. He was coordinator of the CORTEX IST/FET project. He is senior member of the IEEE. Paulo Veríssimo leads the Navigators research group of LASIGE, and is currently interested in: architecture, middleware and protocols for distributed, pervasive and embedded systems, in the facets of real-time adaptability and fault/intrusion tolerance. He is author of more than 130 refereed publications in international scientific conferences and journals in the area, and co-author of five books.

Porquerolles and Port-Cros islands

Porquerolles Island is located in the South East part of France, in Provence. In the north, three superb beaches offer fine sand and the coast here slopes gently down to sea that is exceptionally clear. In the south, vertical cliffs rise out of the sea, from this steep relief you can see a series of rocky inlets, gorges, headlands and hills. You can admire this wild and majestic landscape from the lighthouse where there is a 360 view of the island and the sea.

The island is 7 km long, 2.5 km wide, and 142 meters high. The island has been influenced by several civilizations (Celtics, Ligurians, Etruscans, Greeks, Roman). Recent diggers revealed several archaeological sites. It has traces of military architecture, among which the *Fort Sainte Agathe*, set up on the ruins of the Castle.

Today, Porquerolles, is still an agricultural area, with 200 ha of vineyard producing well known wine. The Mediterranean national botanic conservatory gathers a large collection of fruit varieties in the island.

On this small paradise, with paths bordered with pines and eucalyptuses, you can explore the island on foot or by bicycle to enjoy the pristine nature. With more than 54 km of waymarked footpaths, Porquerolles offers several rambling and hiking possibilities. You can go for a walk to the lighthouse, or make a round trip to *Notre Dame* plain, or to the *Langoustier* side.

You will enjoy the turquoise sea. The southern side of the island presents cliffs and small rocky bays in which you can snorkel and discover the beauty of the underwater world. The north side of the island is a succession of sandy beaches. The island has a diving centre.

More information in English on Porquerolles:
http://www.provenceweb.fr/e/var/porquerolles/porquerolles.htm or http://www.porquerolles.com/?ln=en

Visit Porquerolles, in French: http://visitez.porquerolles.free.fr/

Description of Porquerolles, in French: http://www.portcrosparcnational.fr/visite/fichePQ.pdf

Slide show and Island map: http://evm.vr-consortium.com/titres/porquerolles/zzf/commun/slideshow.htm

Some videos: http://www.amusezvous.fr/

Port-Cros island is the first Marine National Park in Europe. It is a flora and fauna, land and marine, natural reserve. At the cross roads of seasonal movements between Europe and Africa, the island constitutes a special stop for migratory birds.

Wednesday afternoon: visit of Port-Cros Island
http://www.portcrosparcnational.fr/

Description of Port-Cros, in French
http://www.portcrosparcnational.fr/visite/fichePC.pdf

Travel information

An area map can be found at:
http://www.tlv-tvm.com/francais/cadre_acces.htm

Transfer by ferry from the *Gare Maritime* of La Tour Fondue at Hyères to Porquerolles Island.
Travel duration: 15 min. Currently the return ticket is 15.70 € and the time-table for the summer school period is:

Departure from La Tour Fondue		Departure from Porquerolles	
7h30 (1)	12h00	7h00 (1)	14h00
9h00	12h30	8h30	15h00
9h30	13h30	9h30	16h30
10h00	14h30	10h30	17h30
10h30	15h30	11h30	18h30
11h00	17h00		
11h30	18h00		

(1) Not available on Sunday

However, it is recommended to check for fares (*Nos tarifs*) and time-table (*les horaires*) at:
http://www.tlv-tvm.com/

How to get to the *Gare Maritime* of La Tour Fondue at Hyères

From Toulon-Hyères Airport:

- Taxi is 15-30 min drive and costs around 25 €.
- Bus Number 102, to *Gare routière Hyères* (Bus stop: Hyères-centre), 1.40 €. Transfer duration 10 min. Then, from *Gare routière d'Hyères*, take Bus 67 to *La Tour fondue*, 1.40 €. Transfer duration 30-40 min.

From Toulon *SNCF* train station:

- Taxi 30-40 min drive, around 30 €.
- Bus Number 29, 39, 102 or 103 to *Gare routière Hyères* (Bus stop: Hyères centre), 1.40 €. Transfer duration about 1 hour for 29 and 39, 40 min for 102 and 103. Then, from *Gare routière d'Hyères* take Bus 67 to *La Tour Fondue*, 1.40 €. Transfer duration 30-40 min.

From Hyères *SNCF* train station:

- Taxi is 15-30 min drive, around 25 €.
- Bus 67 to *La Tour fondue*, 1.40 €. Transfer duration 30-40 min.

Time-table and itineraries of all buses http://www.reseaumistral.com, *horaires*, then *lignes terrestres*)

By car, follow indications given below.
Motorway exit: Hyères. Then follow indications for *Presqu'ile de Giens* through *La Capte*. Then take the direction of *La Tour Fondue*.

Cars are not admitted in Porquerolles. They should be parked at *La Tour Fondue*. Parking fare is 12.20 € per 24 hours.

How to get to Toulon-Hyères Airport (http://www.toulon-hyeres.aeroport.fr/), the nearest airport:

- Air France and Régional CAE, from Paris-Orly, 12 to 14 flights per day.
- Ryanair, from Londres-Stansted
- Jetairfly, from Brussels and Brest
- Transavia, from Rotterdam [Amsterdam]
- FlyNordic, from Bordeaux and Stockhölm

ReSIST Summer School — 24th-28th September 2007 — Porquerolles

Registration Form to be filled in and returned before 17th August 2007 by

- **E-mail**, to: resist-summerschool@laas.fr or **Fax**, to: +33 (0)5 61 33 64 11
- **and S-mail of the original** (for payment by cheque or credit card), to:
  ReSIST Summer School
  LAAS-CNRS, 7 Avenue du Colonel Roche, 31077 Toulouse cedex 4, France

/_/ *Mrs* /_/ *Miss* /_/ *Mr Last Name:*..... *First Name:*.....

Affiliation: .....

Address: .....

ZIP code: ..... City: ..... Country:.....

Phone: ..... Fax: .....

Email: .....

/_/ Regular registration **/_/ Student registration** Number of accompanying person(s):....

Arrival date:..... Departure date: .....

Special requirements /_/ vegetarian /_/ other (please specify) .....

Payment

Total amount: Euros .....

/_/ **Purchase order** (public institutions only), made out to CNRS, LAAS.

/_/ **Cheque,** made out to Agent Comptable Secondaire du CNRS, Délégation Midi-Pyrénées.

/_/ **Bank transfer** (transfer expenses covered by the sender).
Agent Comptable Secondaire du CNRS, Délégation Midi-Pyrénées
Trésorerie Générale de la Haute Garonne, Place Occitane 31039 - Toulouse, France
Account no.: 10071 – 31000 – 00003001253 - 51
Please ask your bank to indicate as reference 1) your name, 2) LAAS, 3) ReSIST-2007

/_/ **Credit card**

Card holder (if the credit card's holder is different from the person who registers)

Last Name:..... *First Name:*.....

Address: .....

ZIP code: ..... City: ..... Country:.....

I authorize Agent Comptable du CNRS Midi-Pyrénées to debit on my credit card the amount (in words) of Euros: .....

/_/ VISA /_/ EUROCARD /_/ MASTERCARD

Card's number /__/__/__/__/__/__/__/__/__/__/__/__/__/__/__/__/

Expiration date /__/__/__/__/ CID (Last three digits in italics at the back of the card) /__/__/__/

Date : ..... Signature of card holder: