

GMU Employment History

Assistant Professor, September 2007 - present

Principal Education

- 1999 - Ph.D. Landscape Planning and Rural Construction, University of Sassari. (Grade: Excellent)
Dissertation title: Application of GIS in the Territorial Agricultural System: An integration of numerical models for environmental assessment. Two case studies in Sardinia.
- 1995 - Post Graduate Course (Master of Science) Remote Sensing and Natural Resource Evaluation, The Foreign Agronomic Institute – The Technical and Scientific Branch of the Italian Ministry of Foreign Affairs
Thesis title: Land unit map of the Aini Mareb and Halhale catchment area Eritrea, Africa
- 1993 - B.S. Faculty of Agricultural Science, University of Perugia. (GPA 4)

Continuing Education

- 2011 – June-August Visitor Professor: University of Sassari, Department of Landscape Engineer
- 2007 - Course on Business Administration Management in a Public Government. Formez, Italian institution for permanent education. Cagliari, Italy
- 2006 - Post Graduate Course. System Dynamics. Building models in Ecology and Environment: Theory and Practice. UNESCO Chair in Technology, Sustainable Development, and Global Changes – Universitat Politècnica de Catalunya, Barcelona, Spain.
- 1997-2005. Scientific visitors at National Center for Geographic Information and Analysis (NCGIA), Santa Barbara, California
 - 2005 Final report. "The Sleuth urban growth and fire model"
 - 2002 Final reports: "Nature Link prospective" and "The Application of a fire model in Sardinia"
 - 1999 Final report: "The application of fuzzy logic for urban growth modeling in a northern area of Sardinia"
 - 1998 Final report: "Land Planning through GIS, RS and multicriteria decision analysis"
- 1997 Final report: "Forest Fire Management and Urban Growth Modeling"
- 2004. Security of worker in a construction sites. Regulations and Laws, Cagliari, Italy
- Security of worker in a construction sites. Regulations and Laws.
- 1997. Course: GIS and Databases: Incorporating new technologies in spatial indexing, data mining, and visualization. CNR, National Research Center. Institute of Systems Analysis and Informatics, Rome, Italy
- 1995. Course: Off site emergency response to nuclear accident. SCK-CEN, Mol Belgium

**Prior Professional Experience –
Charter Member of IFRAS Company, S.p.A (2000-2007).
Total completed projects value: 193.693.537,74 Euro
290,540,305.5 \$**

Most important projects funded:

Autonomus Region of Sardinia – Councillorship of Work

Assignment of works and reclamation services, valorisation of mining areas and cultural patrimony, and activities of management support to the Local Bodies through the employing workers occupied in socially useful activities, according to the Infra Ministerial and Interregional Project called "Parco Geominerario" (December 2001)

Euro 103.291.380,00

\$ 154,937,070.00

Autonomous Region of Sardinia-Councillor's Office responsible for education:

M.A.R.T.E. Project: Entrusting of necessary services and activities to realize modules of learning, referring to the technical and educational sector (June 2002).

Euro 30.160.000,00

\$ 45,240,000.00

Autonomus Region of Sardinia – Councillorship of Work

Entrusting of services and activities required for the arrangement and realization of a long-term plan, with the objective of employing workers occupied in socially useful activities, according to article 2, comma 1, of Legislative Decree No. 81/2000 with reference to the Infra Ministerial and Interregional Project called "Parco Geominerario" – Additional Act No. 1 to the convention of 21th of December 2001" (June 2004)

Autonomus Region of Sardinia – Councillorship of Industry

Environmental and cultural restoration of buildings in the ex mining village of Arenas-Tini – Fluminimaggiore Municipality" (August 2005)

Euro 2.494.118,82

\$ 3,7411,178.23

Autonomous Region .of Sardinia-Councillor's Office responsible for education:

Entrusting of services and activities for the M.A.R.T.E. Project: its extension and adaptation - Modules of learning, referring to the technical and educational sector - (October 2005).

Euro 7.000.000,00

\$ 10,500,000.00

Other Professional Experience

Regional Council of Environmental Protection Sardinia

- Desertification Project. (2004 - Overall amount of the proposal Euro 960.000,00-\$ 1.440.000,00)
 - Project developer
 - Principal inspector of the project

Regional Council of Program Development

- SPES Project – Prediction of Solar Exposure and Protection

- Principal Investigator and Project developer (2007 - Overall amount of the proposal Euro 120.000,00-\$ 180,000.00)
- Autonomous Region of Sardinia, Italy

Regional Council of Territorial Development

- The Italian Geodatabase Project (2004-2007 - Overall amount of the proposal \$2.480.000)
 - Appointed to oversee the production, quality control, and maintenance of the Sardinian portion of the nationally sponsored Geodatabase
 - Principal Investigator

Ministry of Infrastructure – Directorate General of Water Infrastructure

- Director for GIS applications and IT Director (2004 -2007)

SOGESID - National Water Infrastructure Management Firm; Roma, Italy

- GIS Consultant (2004-2006)
- Sustainability, equity and efficiency of irrigation infrastructures in Sardinia
- Watershed Management Plan – Piano Stralcio
- Regional Water Plan – Piano d’Ambito

Council for Territorial Planning and Economic Programs; Cagliari, Italy

- Principal Investigator (1999-2004)
- The development and maintenance of a Geographic Information System for the analysis of agricultural, forest, and ecological data
- The GIS framework has been used for a variety of regional planning projects, concerning natural resources, environmental issues, and urban development decision-making

Ministry of the Environment, Rome, Italy

- RS - GIS consultant (2003)
- Regional planning for natural and agricultural resources on the urban fringe

Basilicata Region, Italy

- Inspector of national GIS layers (2003)
- Member of the inspecting commission for the GIS layers of the Italian Geographic Information System

University of Sassari, Faculty of Agricultural Science, DESA Department, Italy

- Consultant (2003)
- Responsible for the development and maintenance of a Geographic Information System for olive tree agriculture and olive production

Council for Territorial Planning and Economic Programs, Cagliari, Italy

- Environmental Consultant (2003)
 - Member of the monitoring commission for the “GILIA” Project
 - Regional waste infrastructure plan using GIS and RS technologies

FORMEZ Study and Teaching National Center, Italy

- Supervisor of the environmental task force (2002)
- Evaluation of the P.O.R. (Operational Regional Plan)

- Evaluation of the governmental projects using the SWOT analysis (Strength, Opportunity, Weakness, Threat)
- European Community funded project for the Strategic Environmental Assessment of the Regional Government

National Institute of Agricultural Economics (INEA) and Ministry of Agricultural and Natural Resources; Rome, Italy

- Consultant (1999 - 2007)
 - Responsible for cartographic production for the SIGRIA (Information System for the Management of Agricultural Water Resources) project in Sardinia
 - The application of Geographic Information Systems for the management of water resources and the identification of potential agricultural irrigation areas
 - This project financed by the European Community and the Ministry of the Environment
- CNR, National Research Center, Young program research, Italy
- Project leader (2001)
 - Nature Link (Need Analysis Targeted at Urban and Rural Environment Linking Information with Knowledge-Based Systems)

AGEA, National Agency for agricultural funds, Rome Italy

- Province of Cagliari (2001)
- Responsible vineyard inventories implemented for the first time through Remote Sensing

SAR, Agrometeorological Service of Sardinia and INTERREG (European project for cooperation between Regions); Sassari, Italy. Desertification Project

- Project leader (2000)
- Responsible for assessing the severity of desertification in Sardinia and presenting results to decision makers for policy implementation

Sardinian Regional Government, Department of Forest Resources

- Appointed Forest Inspector (1999)
- Responsible for coordinating teams to determine the forested areas in most need of preservation

ERSAT - Government Organization for Technical Development and Assistance in Agriculture; Cagliari, Italy

- Consultant (1996)
- Responsible for the integration of GISystems and Remote Sensing in the framework of HYDRE, a European Community project
- This project identified the potential for crop growth and production through quantitative estimates given specified soil, water, and weather conditions

ECOPLAN - Consultants in Natural Resource Development; Cagliari, Italy

- Consultant (1994 - 1995)
- Responsible for remote sensing and image processing in the framework of a European Union project
- This project concerned the assessment of environmental impact caused by the construction of a dike in the Tikar Plain in Cameroon, Africa

Prior Academic and Research Experience

University of Sassari, Faculty of Agricultural Science, DESA Department

- Researcher on sustainable ecosystem models for oak (*Quercus Suber*) (2000-2001)
- Development of GIS models to determine suitable ecological areas for oak forests

Center for Advanced Studies, Research and Development in Sardinia (CRS4); Cagliari, Italy
Dean of the Research Center: Nobel Price Prof. Carlo Rubbia,

- Researcher, Environmental Group; Landscape Assessment and GISystems (1996 - 2000)
- Project Team: GIS and Environmental Indicators for Forest Assessment
 - Implementation of a GIS in a forested area in the framework of the European Community project "VISION"
 - In cooperation with the National Organization for the Forest (ONF), France
- Project Team: Industrial Observatory of Sardinia
 - Development and application of a Geographic Information System for the continued development of the 23 industrial areas of Sardinia
- Project Team: Coast of Sardinia
 - A project financed by the regional government of Sardinia for land use assessment of the coastal areas of Sardinia through the use of Remote Sensing and GISystems
- Thesis Reporter:
 - Building and testing of GIS, applied to an environmental risk area of Iglesiente
 - Thesis of Laura Pireddu, Dept. of Landscape Assessment; Faculty of Engineering.

Hydro-control Research Center Poggio dei Pini, Italy

- Researcher (1996)
- Calculation of leaf stress for crops and orchards using infrared assessment and irrigation scheduling

SCK/CEN Belgian Nuclear Research Center; Mol, Belgium

Dean of the Research Department: Dr. Theo Zeevaart

- Researcher, Radiation Protection Department (1993 - 1994)
- Responsibilities included the application of a model concerning the evaluation of the dose of radiation absorbed after a nuclear accident
- The model simulated a variety of risk scenarios, following a range of possible nuclear accidents
- Final report entitled "*Integrated Approach of GIS and Multicriteria Decision Making in Nuclear Accident*"

Prior Teaching Experience

(2000) GIS for Forest Applications

- 10 graduate students (Forest inspectors)
- Principles of GIS and application to forest management

(2004 – 2005) Principles of GIS

- 20 post graduate students (Government employers)
- Principles of GIS in government organizations

(2006 – 2007) The application of GIS for Park Planning

- 6 graduate students
- Utilization of GIS for planning

❖ Several courses at graduate level

Research Interest

Experienced in primary research for:

- Geographic Information Science and Remote Sensing
- Environmental Science and Environmental Protection
- Land Use Planning and Urban Growth Modeling
- Fire Modeling
- Water Resources and Infrastructure
- Geospatial spread of the diseases

Promoter of the Academic Cooperation between Sardinia Autonomous Regional Government and MASON.

The purpose of this Agreement is to stimulate and to support educational intercultural activities and projects between US and Italy. The scope is to explore the possibility of joint academic endeavors in the establishment of GMU-IMT (Mediterranean Institute of Technology), exchange of expertise in institutional and program development.

References:

<http://www.regione.sardegna.it/j/v/25?c=255&s=155566&t=1&v=2>

<http://www.oics.it/index.php/it/tutte-le-news/1042-cooperazione-accademica-accordo-sardegna-george-mason-university>

http://www.sardegnaoggi.it/Scienza_e_Tecnologia/2010-12-15/15251/Ricerca_accordo_tra_la_Region_e_l_america_n_George_Mason_University.html

Project funded

Date	Amount	Overall amount	PI	Title	Sponsor
4/04/10	420,000	420,000	Dr. Manca	GIESP- Geographic Information Science and Environmental Planning - Consortium for Cooperative Education, Reciprocal Training and Outreach	US Department of Education

Presented relevant project: US-AID, in collaboration with "Mekelle" University in Ethiopia. A project was supported by the government of Ethiopia (Ministry of Agriculture, institutional organization and research centers).

Publications

Book chapter

- Manca, Germana (2001) "Manual of Olive Agriculture", Interprovincial Consortium for Fruit Agriculture, Department of Economics and Woody Plant Ecosystems, Chapter 2, pp. 5-15.
- Manca, Germana (2001) "The Cultivation of *quercus suber L.*" TAS Edition, University of Sassari, Department of Economics and Woody Plant Ecosystems, pp. 36-37, 105-108, 112-120.
- Manca, Germana, A. De Montis (2001) "Tourism or Rural Activities for the Northeast of Sardinia: Spatial Statistical Analysis for the Study of Vocational Development" in *GIS Methods and Instruments for the New Governing of Cities and Regions*, pp. 195-214. ISBN: 88-3871-948-9 San Marino. Maggioli Editore.
- Manca, Germana (1999) "Design and experimentation of a Geographic Information System applied to an environmental risk area in the Iglesiente" in *Ecosystem and Sustainable Development II – Advances in Ecological Sciences*, pp. 167-172. Eds. C.A. Brebbia and J.L.Uso, WIT Press.
- Muscas, Laura, Germana Manca, and Andrea Zicchi (1999) "Geographic Information Systems for the Evaluation of a Forest Area under Environmental Risk" in *Regional Information and Environmental Risk*, pp. 989-993, vol II. ASITA 99, Naples, Italy.
- Muscas, Laura and Germana Manca (1998) "A Regional Information System for the Planning of Coastal Areas" in *Rilevamento, rappresentazione e gestione dei dati territoriali e ambientali*, pp 245-250, vol. II. ASITA 98, Bolzano, Italy.
- Manca, Germana (1998) CRS4 Technical Report, "Geographic Information Systems and their application to territorial resource management".

Peer review journal

- [Biba, S., K. M. Curtin, and G. Manca. "A new method for determining the population with walking access to transit."](#) *International Journal of Geographical Information Science*. Volume 24 issue 4-April 2010.
- G. Manca, G. Cervone, K.C. Clarke "Atmospheric Releases during the 2003 Glacier Wildfires: Mapping, Analysis and Modeling", submitted to: "Applied Geography"

- G. Manca, K.Curtin "Fuzzy spatial analysis for modeling regional delineation and development: the case of the Sardinian Mining. Submitted to Transaction in GIS
- Manca, Germana, A. DeMontis, and C. Zoppi (1998) "Environmental Planning in Sardinia: two cases" in Genio Rurale. Estimo e Territorio. Vol LXI (6), pp 47-55. ISSN:0016-6863. Edagricole. Il sole 24 ore, Bologna.
 - ***In preparation***
 - G. Manca, G. Cervone "Analysis of UV Satellite and Ground Observed Data for Sardinia". To be submitted to: Intl. J. of Health Geographics
 - G. Manca, G. Cervone " Data Mining and pollution source. A mining area in the Sardinian Geopark". To be submitted to: I.J.G.I.S.
 - G. Manca "Observation on the result of an Urban Sprawl Model: ten years later." To be submitted to: Environmental and planning B.
 - G. Manca, L. Mortarini, P. Franzese " Relationship between the decline of Mediterranean vegetation and atmospheric pollution in Southern Sardinia"

Conference proceedings

- (2011) AAG Seattle
- (2009) Transatlantic Nectar Conference, Alexandria (VA-US)
 - Paper presentation: "Accessibility in Commuting U.S. Network
 - Simone Caschili, Andrea De Montis, Germana Manca, Giancarlo Deplano
- (2008) AAG Annual Meeting, Boston
 - Paper presentation: "SPESS Agency: Sardinia PEr Secure Solar Energy"
 - G. Manca, G. Spera
- (2005) 6th European Geopark meeting; Lesvos Greece
 - Paper presentation: "*Sardinian Environmental Historical Geopark: A development opportunity*"
 - Manca G., Pireddu L.
- (2003) Geocomputation: 7th International Conference on GeoComputation; Southampton England
 - Poster presentation: "*The Geopark in Sardinia: a fuzzy spatial analysis for assessing development tendencies.*"
- (2002) National Conference ESRI Italia; Rome, Italy
 - Paper presentation: "*Metodologia per la redazione di una carta in scala 1:250.000 sulle aree vulnerabili al rischio di desertificazione in Sardegna, sulla base di parametri meteorologici, fisiografici e pedologici*"
- (2001) IUFRO Conference; Palermo, Italy
 - Collecting and analyzing information for sustainable forest management and biodiversity monitoring with special reference to Mediterranean ecosystems
 - Poster Presentation: "*Cork Oak distribution and productivity in Sardinia: integration of GIS and empirical models*"
- (1999) 39th European Congress – ERSA – European Regional Science Association
 - Paper presentation: "*Economic forecast and fuzzy spatial analysis: integrated tools for assessing the development tendencies of an Italian region*"

- (1998) GIS98, Wessex Institute of Technology and University of Udine
 - Paper Presentation: “*Application of a GIS applied to an environmental risk area in the Iglesiente*”
 - Paper Presentation: “*Land planning through GIS, RS, and Multi-Criteria decision analysis. A case study of Sardinia*”, July
- (1998) Un’applicazione GIS come aiuto alle decisioni: il caso dell’espansione urbana di Macomer. Seconda conferenza Nazionale sui GIS – GISITINERA ’98. I sistemi informative territoriali per la pianificazione e gestione del territorio, Cagliari, Facolta’ di Ingegneria, Aula Magna
- (1998) GISITINERA, Cagliari, Italy
 - Paper presentation: “*Un’applicazione GIS come aiuto alle decisioni: il caso dell’espansione urbana di Macomer*”
- (1997) Regional Science Association, Annual Conference “37th European Conference” Rome, Italy
 - Paper Presentation: “*SITAI - A Geographic Information System for the industrial areas of Sardinia*”
- (1997) Italian Association of Agricultural Engineers (AIIA), VI national Conference “Engineering for a Sustainable Agriculture” Ancona, Italy
 - Paper presentation: “*Introduction to an integrated approach of GIS and RS for urban and landscape planning*” vol.2, pp 287-298.
- (1997) International Association of Agricultural Economists (IAAE), Annual Meeting: “XXIII International Conference of Agricultural Economists, Food Security, Diversification, and Resource Management: Refocusing the Role of Agriculture?”
 - Discussant
- (1997) Workshop - The use of water in sustainable agriculture: A commitment to development and environmental protection (with special regard to semiarid areas). Albacete, Spain.
 - Poster Presentation: “*Irrigation scheduling in Mediterranean and semiarid countries*”
- (1996) ESRI 13th European Conference – Firenze, Italy.
 - Poster Presentation “*The use of GIS and computational modeling with an application to forest fire management: a case study of Northern Sardinia*”
- (1996) Biennial Conference of the North American Fuzzy Information Processing Society (NAFIPS), New Frontiers in Fuzzy Logic and Soft Computing. Berkeley, CA.

Government Reports

- (2006) Sardinian Watershed Management Plan – Piano Stralcio – Law n. 183/89. Report “Fabbisogni”pp.13-77; Maps: “Use of irrigation infrastructure”; “Irrigation Classes”; “Center of request and irrigation classes”. Editor: Regional Government of Sardinia
 - <http://www.regione.sardegna.it/j/v/25?s=15597&v=2&c=1323&t=1>
- (2004) Sardinian Regional Water Plan – Piano d’Ambito. Agriculture assessment section
- (2003) County Waste Management Plan. Environmental Analysis Section
- (2002) County Urban and Territorial Plan. Environmental and agricultural transformation Section

Conference Activities

- a. AAG Annual Meeting, Boston, April 2008 – Chair of the session
- b. Workshop Corjani, SISTEMA.INFORMAZIONE.TERRITORIO, May 1997. Scientific committee. Perugia.

