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THE NUMBERS OF IBIMET

Staff	122
researchers	64
technicians	17
administration	4
fellowships	37
Funds	
more than 4 M€ per year of which 88% of the total amount from external sources	
Projects	
<i>Ibimet runs approximately 60 per year</i>	
National projects	74%
International projects	22%
Cooperation projects	4%



IBIMET ON

Earth observation and analysis is ongoing at different scales, from the leaf to the region and to the globe: global, mesoscale and regional models for climate characterization and forecasting are developed and calibrated to understand the effects of the climate and interactions with biosphere on agricultural performance in terms of quantity and quality.

Critical interactions between meteorological / climatic factors and vegetation (managed and unmanaged ecosystems) are studied at the micrometeorological scale, by investigating physiological mechanisms of responses to stress, and adaptation.

Rural development is addressed towards the reduction of human pressure on land and resources, studying how appropriate land use may retrieve local vocality and typical products, and knowledge, also linked to non-food crops cultivation and industry. Linkages with consumer acceptance and end-product quality, and connections with energy optimization are envisaged.

Interdisciplinarity is a duty to properly address biometeorology, and interdisciplinarity is a matter of fact at IBIMET.

KEY ACTIVITIES

- Match environmental physiology and boundary-layer physics, dealing with the effect of elevated CO₂ on ecosystems and with carbon, nitrogen, trace gas and water vapour fluxes between the atmosphere and the biosphere.
- Obtain source-sink data of agro-ecosystems at different scales and using different tools (ground, airborne and satellite data) to assess their contribution to atmospheric greenhouse gas balance.
- Develop and operate new technologies and methods to manipulate different ecosystem types to mimic expected changes in climate (CO₂, water, nitrogen deposition etc.) and to monitor environmental and meteorological drivers of plant response.
- Develop fire hazard rating systems and forest fire simulators for modelling fire hazard and spread in Mediterranean forests, with particular emphasis on extreme weather conditions and wildland (rural) urban interface/intermix.
- Assess low-impact farming strategies (water, energy, chemicals, labour input reduction, zoning) by means of agrometeorological monitoring, model and instrumentation development, remote sensing and GIS applications. With the aim of overcoming the concept of agriculture as a mere production sector, and instead highlighting its multifunctional role, also in terms of human health, by considering food safety plus environment sustainability and conservation.
- Develop weather forecasting systems including seasonal forecasts.
- Define "meaningful" crop quality evaluation methods, which integrate biochemical composition with aromatic profiles, up to safety and consumer science.
- Analyze the effects of "globalization" on local resources and economy, also in cooperation with Italian Ministries and several local institutions, stakeholders and private partnerships, and enhance the development of rural areas, through the integration of agriculture, landscape conservation and protection of traditional local knowledge at several scales, also by fostering the growth of bottom up initiatives and networks.
- Assess vulnerability at environmental health level and at economic scale by investigating in particular fragile areas (i.e. coastal, marginal) in order to improve knowledge and operational attitudes towards the adoption of best practices.
- Design and test new tools, from agrometeorological applications to satellite remote sensing, GIS and modelling, to enhance the cooperation with developing Countries.
- Produce communication materials for raising awareness campaigns and educational initiatives with schools; participate in high qualified training organised by major universities and international institutions.

APPLIED RESEARCH CENTRES created by the Institute over the last decade:

- LAMMA - Laboratorio per la Meteorologia e la Modellistica Ambientale - Laboratory of Monitoring and Environmental Modelling for Sustainable Development (1997) in collaboration with Tuscany Region.
- CISA - Centro per l'Informatica in Agricoltura - Centre for Informatics in Agriculture (1985) in collaboration with the Accademia dei Georgofili.
- FCS - Fondazione per il Clima e la Sostenibilità - Foundation for Climate and Sustainability (1994)
- CIBC - Centro Interdipartimentale di Bioclimatologia - Interdepartmental Centre of Bioclimatology of the University of Florence (2003).
- CIMMAMed - Centro di Meteorologia Marina e Monitoraggio Ambientale del Mediterraneo - Marine Meteorology and Environmental Monitoring Centre of the Mediterranean (2003) in collaboration with Tuscany Region
- CRES - Centro Ricerche Erosione Suolo - Research Centre on Soil Erosion (2003) in collaboration with Tuscany Region
- ICHAR - Italian Biochar Association, A no profit organization for the promotion of research activities on the agricultural use of biochar, in collaboration with the University of Udine and some leading agri-food enterprises.
- PIANLTC for landscape planning (2006) in collaboration with ONA (Handcraft National Confederation)
- SESRE - Società Europea per lo Sviluppo Rurale e l'Ecotourismo - European Society for Rural Development and Ecotourism (2008).



The Institute of Biometeorology (IBIMET) has its roots in the former Institute of Agrometeorology and Environmental Analysis applied to Agriculture (IATA), which was created in Florence in the early 1980s to "bridge the gap between theoretical and operational applications of agrometeorology, climatology, and remote sensing". The initial idea was well in line with emerging scientific issues on the international scenario (Institut de Bioclimatologie, INRA, France - Theoretical Production Ecology Department, Agricultural University of Wageningen, NL). More recently the Institute of Plant Ecophysiology in Bologna and the Institute for Agro-ecosystem Monitoring in Sassari were also merged to create the Institute of Biometeorology that now has well-established collaborations with International Research Institutions and Universities and many interactions with public organizations, private industries and stakeholders.