Network for National Integrated Assessment Modelling Activities

IAM activities in Italy

Since the end of 2002, Italy has started a National Project, denominated MINNI (**N**ational **I**ntegrated **M**odeling System to support the National and **I**nternational **N**egotiations on Air Pollution), aiming at creating an Integrated Modeling System for the analyses of air pollution and its effects on the environment and the human health. The Project, established for 3 years and funded by ENEA, the Italian Agency for the New Technology, Energy and the Italian Ministry for the Environment, the Land and the Sea (MATTM), was led by ENEA and carried out in cooperation with IIASA (International Institute for Applied Systems Analysis) and ARIANET S.r.l. (a private company in Milan). MINNI comprises two indipendent models, which work similarly to the RAINS_Europe & EMEP system:

- The Atmospheric Modelling System (AMS_Italy), a Eulerian Model tool for the analysis of pollutant dispersion and the chemistry of the atmosphere

- RAINS_Italy Model, an integrated tool for scenario analysis, derived by the IIASA Rains_Europe Model (recently upgraded at GAINS, for GHGs emission analysis)

The first, AMS_Italy, takes into account the peculiarities of the country for what concerns the meteorology (reference year 1999) and territorial morphology, with a higher spatial resolution, 20km x 20km, with respect the EMEP resolution in RAINS_Europe (50km x 50km).
The second model, RAINS_Italy, allows the scenario emission/cost analyses, and having embodied the Atmospheric Transfer Matrices elaborated by AMS_Italy, allows the quick generation of concentration/deposition/impact maps, in terms of average annual values. The pollutants concerned are the same as in RAINS/GAINS Europe.

The MINNI Modeling System, which is fully operating since the end of 2005, has been successfully used in the current NEC review process analyses, allowing to assess the compliance with the ceilings in the current directive and also to highlight some significant differences with respect similar scenarios developed by IIASA. Such differences, mainly due to diverse user interpretation of the Control Strategy (e.g. the CAP reform effects) and, in some cases, to some country specific Emission Factors, are also regarded as an attempt of quantification of the intrinsec uncertainties in the modeling system.

The use of RAINS_Italy has also allowed to estimate the effects in terms of compliance with the NEC Directive, of the overestimation in some calculation parameters (e.g.

Removal Efficiency of abatement technologies for Heavy Duty Vehicles), as recognized in the Artemis study.

At national level, RAINS_Italy is currently used to assess the Air Quality plan, established at level of local authorities (Regional Authorities). The extention to GAINS_Italy, currently in progress, will allow to evaluate sinergies and trade offs, between Air Pollution and Climate Change, with a special attention to the increasing use of bio-masses, as well as, elaborate alternative scenarios to achieve the Kyoto and post Kyoto Targets.

A number of works have been published on scientific magazines, or presented at International Conferences.

An ad hoc Web Site (currently under updating) has been created to describe the characteristics, the functions and scope of application of the MINNI system and is available, partially in English, at:

http://www.minni.org/rains/english_version.htm

the reference people involved in the Project are also reported on the web site.