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Philosophical and epistemological debate in Italy within an ethical perspective of Earth sciences

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During the recent "Geoitalia" national congress, the Italian scientific community tackled questions concerning the philosophy and sociology of Earth Sciences. The topics discussed and reported in this article were: the overall identity of E.S.; the validation procedures of data, theories and models; the power of attraction exerted by the philosophy of physics - exact science par excellence - with respect to E. S.

As regards the first subject, the problem to identify common factors of identity for E.S. was emphasized. These factors were taken into account especially in relation with philosophical assumptions of the various disciplines making up E.S. As regards the second subject, some circumstances, which are often underestimated by the scientific community, were discussed: the homogeneity of the forms adopted by reviews for refereeing articles; the quality and criteria of reliability of the information acquired from research and cartographic products; the problems of popularization by means of the mass media or scientific publications. As regards the third subject, interest was focused on how physics has often influenced the development of E.S. with its effects on the ranking of values. Indeed, E.S. have always been considered as "descriptive" sciences or sciences of "processes", with the assumption that they are basically a sort of physico-chemistry of the Earth's phenomena. This attitude has oriented and also constrained the distribution of resources.

The discussion and remarks, resulting from the personal research experiences of the participants (Bertacchini, Bosi, Diviaco, Finzi Contini, Furlani, Gregori, Martina, Padovani, Panizza, Peppoloni, Piacente), regarded very diverse ambits: philosophical problems and epistemological implications, sociological topics, methodological and historical aspects.

In particular, the problems concerning educational and museum-related management were considered, together with logical and historical assumptions on the definition of geodiversity, reports of events and biographies of historical interest, perception and philosophy of the landscape and the opportunity that the fundamentals of the humanities may find their roots in investigations carried out by E.S.

All interventions discussed the ways leading to the social fruition of geological culture, the responsibilities of researchers in popularizing their own scientific discoveries. As a consequence, the need to appraise and acknowledge the authoritativeness of E.S. within the framework of modern science follows, focusing on the important social responsibility to inform the public on geological resources and risks and to find solutions for their mitigation.

In conclusion, the topicality of the problems discussed with the goal of favouring a more ?social? image of E.S. became evident, as did the need for greater participation in order to develop comparisons of opinions and synergies, with particular attention to the organization of scientific and language knowledge.

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