

SINTESI VALUTAZIONE ISTITUTI 2014
Dipartimento Scienze della Terra e Tecnologie per l'Ambiente (DTA)

Struttura	Voto Panel 2014	Giudizio	Rank 2014	Rank 2009
Scienze dell'Atmosfera e del Clima	112	World class	1	5
Biologia Agro-ambientale e Forestale	108	World class	2	1
Scienze Marine	108	World class	2	2
Dinamica dei Processi Ambientali	103	World class	4	2
Geoscienze e Georisorse	103	World class	4	8
Ambiente Marino Costiero	102	World class	6	5
Geologia Ambientale e Geingegneria	102	World class	6	12
Metodologie per l'Analisi Ambientale	102	World class	6	4
Ricerca per la Protezione Idrogeologica	100	World class	9	9
Studio degli Ecosistemi	95	World class	10	11
Inquinamento Atmosferico	93	World class	11	7
Ricerca Sulle Acque	92	World class	11	10
MEDIA PANEL	101,67	World class	12	10

Istituto: Scienze dell'Atmosfera e del Clima - (ISAC)

Voto Panel	112
Giudizio	World class

Panel Recommendations

Critical mass of researchers has to be ensured to all sections and research groups. ISAC has most of its research staff concentrated in three sections, Bologna, Torino and Lecce; the other four sections have five or less researchers/technologists. Moreover, the Lamezia Terme section has the responsibility to manage a GAW-WMO regional station with only two researchers/technologists in the staff. Since four sections are involved, new staff recruitment would take too long to solve the problem and panellists recommend to reinforce collaboration among ISAC sections and to promote internal short-term mobility of staff. A short-term mobility from sections with larger number of researchers and technologists towards smaller sections could reduce the disparity of researcher/technologist staff among sections and ensure a better operation of the research infrastructures managed by the Institute

Istituto: Biologia Agro-ambientale e Forestale - (IBAF)

Voto Panel	108
Giudizio	World class

Panel Recommendations

The panel recommends:

- to strengthen with the entry of new staff basically the area most productive as publications, projects and fund raising.
- to encourage the career development of staff more active
- to increase as number and quality the scientific production in the some relevant topics
- to improve the integration among some groups and some UOS activities
- to encourage integration of groups with low productivity with groups more productive
- to increase capacity of fund raising and publications in some groups.

Istituto: Scienze Marine - (ISMAR)

Voto Panel	108
Giudizio	World class

Panel Recommendations

- Reduce heterogeneity in the scientific productivity among research groups. ISMAR is a leading Institute of Marine Science in the Mediterranean and in Europe but to consolidate and improve its competitiveness on the international scale the Institute must enhance the average productivity of its research groups. The panelists recommend to promote in a stronger way scientific productivity, to encourage association of the weakest research groups of the Institute with leading groups of other research Institutes or Universities or/and to make investments in human capital, recruiting highly productive and energetic early career scientists to take the leadership of the less strong groups. Reinforcing weak groups would enhance the average scientific level of the Institute and support excellency;
- Critical mass of researchers has to be ensured to all sections and research groups. ISMAR has most of its research staff concentrated in three sections, Bologna, Venezia and Ancona; the other four sections all together would have a researcher/technologist staff comparable to those of the larger stations. The panelists recommend to reinforce collaboration among ISMAR sections and to promote internal short - term mobility of staff. A short - term mobility from sections with larger number of researchers and technologists towards smaller sections would reduce functionally the heterogeneity of researchers/technologists staff among sections and ensure better operation of the research infrastructures managed by the Institute.
- Strengthening collaboration of ISMAR with other Institutes of the Department in the field of Marine Sciences. Research in Marine Sciences involves almost the 50% of staff of the Department of Science of Earth System and Technologies for the Environment with the 41% of staff in only two Institutes, i.e., ISMAR and IAMC. Panelists suggest to the National Research Council to move towards the establishment of a single Institute joining all the marine research and technology of the CNR, promoting in the short term incentives to the collaboration among all Institutes involved, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. This would reinforce the competitiveness of the Institutes and of CNR and increase the critical mass of CNR researchers/technologists working on Marine Sciences. Considering the two main Institutes, the panelists recommend to start the action with a better allocation of roles between them.

Istituto: **Dinamica dei Processi Ambientali - (IDPA)**

Voto Panel	103
Giudizio	World class

Panel Recommendations

- a. The management of the Institute need to find out incentives to increase scientific productivity of those components currently below the average. IDPA global scientific productivity is quantitatively and qualitatively very good with papers published in excellent journals. However, productivity is not evenly distributed and considering the small critical mass of IDPA it leaves open two solutions: either the less productive groups close the gap or an intervention is required to reinforce the groups hiring new leaders.
- b. Reinforce or re-balance the synergies between IDPA and Universities. The overall activity and productivity of IDPA and the articulation of research lines, mostly very productive, is clearly the result of a synergic action of the CNR and the associate components of IDPA. The collaboration between CNR and Universities is a strength point of IDPA as well as of other Institutes of the Department. However, from the available documents the synergy is not clearly evident in two areas (formation and international projects) where it would be expected very well developed. Improving synergies on these two areas, with more intense teaching activities of the CNR staff and joint PhD programmes and international projects would be beneficial for both Institutions.
- c. Strengthening collaboration of IDPA with other Institutes of the Department in the field of Earth Observation. Earth Observation is in the mission of IDPA but it is among the major research themes of many Institutes in different CNR Departments. Panellists suggest to the National Research Council to promote incentives to the collaboration among these Institutes, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. This would reinforce the competitiveness of CNR Institutes, increase the critical mass of CNR researches/technologists working on Earth Observation without creating new changes at least at this stage in the overall structure of the Institutes.

Istituto: **Geoscienze e Georisorse - (IGG)**

Voto Panel	103
Giudizio	World class

Panel Recommendations

- a. The management of the Institute need to find out incentives to increase scientific productivity of those components currently below the average. IGG global scientific productivity is quantitatively and qualitatively good but not evenly distributed among and within sections and some researcher/technologists has a very low scientific production. Incentives might be useful to solve criticisms at the individual level while recruitment of new leaders is recommended to address the problem at the level of research groups.
- b. Reinforce the synergies between IGG and Universities. The overall activity and productivity of IGG and the articulation of research lines, mostly very productive, is clearly the result of a synergic action of the CNR and the associate components of IGG. The collaboration between CNR and Universities within CNR Institutes is strength point of IGG as well as of other Institutes of the Department. However, from the available documents the synergy is not clearly evident and should be reinforced both in terms of scientific productivity and of attractiveness to high competitive international funds.
- c. Experience and excellence in the field of geochemistry should be maintained. The section of Pavla is a national and international reference center in the field of geochemistry with considerable experience acquired over decades and with high level laboratories.

Istituto: Ambiente Marino Costiero - (IAMC)

Voto Panel	102
Giudizio	World class

Panel Recommendations

- a. Address and solve the management problems. Both the report and the interview with the IAMC Director have highlighted to the panelists that management problems occur in IAMC. Panelists recommend to give the highest priority to solve these problems, which might impair the functionality of the Institute, even though panelist haven't specific solutions to propose to the Director and to the CNR;
- b. Reduce heterogeneity in the scientific productivity among research groups. While the scientific productivity of IAMC is very good, it is there a heterogeneity within and among sections. As for ISMAR, the panelists recommend to promote in a stronger way scientific productivity, to encourage, when possible, association of the weakest research groups of the Institute with leading groups of other research Institutes or Universities or/and to make investments in human capital, recruiting highly productive and energetic early career scientists to take the leadership of the less strong groups.
- c. Strengthening collaboration of IAMC with other Institutes of the Department in the field of Marine Sciences. Research in Marine Sciences involves almost the 50% of staff of the Department of Science of Earth System and Technologies for the Environment, with the 41% of staff in only two Institutes, i.e., ISMAR and IAMC. Panelists suggest to the National Research Council to move towards the establishment of a single Institute joining all the marine research and technology of the CNR, promoting in the short term a stronger collaboration among all Institutes involved, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. This would reinforce the competitiveness of the Institutes and of CNR, increase the critical mass of CNR researches/technologists working on marine sciences. Considering the two main Institutes, the panelists recommend a better allocation of roles between these Institutes. Particularly, considering IAMC, panelists would recommend to give a clearer and stronger focus to IAMC on Science for the sustainable management of natural resources, eventually with some reallocation of sections between IAMC and ISMAR; this reorganisation, reducing the fragmentation of the Institute in research lines, as regards the human capital, might have a positive influence also for the management.

Istituto: Geologia Ambientale e GeoIngegneria - (IGAG)

Voto Panel	102
Giudizio	World class

Panel Recommendations

- a. The relationships between CNR and University components of IGAG need to be clarified and the synergy strengthened. IGAG has all sections apart the headquarters hosted by Universities, with University staff associate to the Institute; it is a potentially very fruitful collaboration for both Institutions but needs clear and transparent relationships, partially lacking for many Institutes of the Department. Particularly, as regards IGAG it must be strengthen the contribution of the University in promoting and funding collaboration on fundamental research topics and strengthening on these topics IGAG attractiveness for early career scientists from outside Italy;
- b. The Turin section is too small to be maintained as such. A section with a single researcher/technologist is far too small. IGAG and IGG must consider the opportunity to join their Turin sections into a single IGG section, taking advantage of the fairly larger number of researchers/technologists (8) in the current IGG section;
- c. The Cagliari section is small and with poor scientific production, requiring intervention. The section has only 5 researchers/technologists and the lowest publication record among IGAG sections. The panel, considering the opportunity that the abandoned mining areas of Sardinia offers as field laboratories for the development of new technologies to the treatment of polluted sites and recovery of secondary raw materials, suggest to reinforce the Cagliari section. To this aim the panel recommend to strengthen the collaboration with the University promoting initiatives of joint interdisciplinary PhD programmes towards the recruitment of highly productive early research scientists trained to interdisciplinary collaborative research.

Istituto: Metodologie per l'Analisi Ambientale - (IMAA)

Voto Panel	102
Giudizio	World class

Panel Recommendations

a. The management of the Institute need to find out incentives to increase scientific productivity along the main research themes that characterise IMAA and contribute to the international recognition of the Institute. IMAA scientific productivity is qualitatively very good, which is actually a strength point of the Institute. However, the outstanding research groups are not involving the whole researchers of the Institute and the average productivity per year is still lower than expected. The panellists recommend investments in human capital focused on the recruitment of highly productive and energetic early career scientists to take the leadership of the less strong groups; it would enhance the average scientific level of the Institute and also support excellency;

b. Strengthening collaboration of IMAA with other Institutes of the Department in the field of Earth Observation. Earth Observation is in the mission of IMAA but it is among the major research themes of many Institutes in different CNR Departments. Panellists suggest to the National Research Council to promote incentives to the collaboration among these Institutes, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. This would reinforce the competitiveness of the Institutes and of CNR, increase the critical mass of CNR researches/technologists working on Earth Observation without creating new changes at least at this stage in the overall structure of the Institutes.

Istituto: Ricerca per la Protezione Idrogeologica - (IRPI)

Voto Panel	100
Giudizio	World class

Panel Recommendations

The management of the Institute need to find out incentives to increase scientific productivity of those components currently below the average. IRPI global scientific productivity is quantitatively and qualitatively very good with papers published in excellent journals. However, productivity is not evenly distributed and considering the small critical mass of IRPI it leaves open two solutions: either the less productive groups close the gap or an intervention is required to reinforce the groups hiring new leaders.

Istituto: Studio degli Ecosistemi - (ISE)

Voto Panel	95
Giudizio	World class

Panel Recommendations

- a. The management of the Institute need to find out incentives to increase scientific productivity, particularly along the main research themes that characterise ISE and contribute to the international recognition of the Institute. ISE scientific productivity has greatly improved after the past evaluation but still does not reach the level of excellence required by an Institute with so a strong international reputation and is based on the activity of only few research groups or individual researchers;
- b. There is a need of a stronger collaboration among research groups of the different sections of ISE. The Institute is relatively small, contributing to only the 5% of the research staff of the Department and distributed into 5 geographically distributed sections. The competitiveness of ISE at the international level requires increasing the critical mass of researchers on the key research themes of the Institute; it requires investments in human capital by the CNR but also a stronger integration of the existing research staff of ISE or a complete re-organisation of the Institute.
- c. The Rome and Sassari sections are well below a critical mass of existence. The Rome section has only one researcher, one of the most productive of the entire Institute, and the Sassari section only 4. Despite the scientific relevance of at least one of these sections, the panel wouldn't find appropriate to allocate investments on them, unless they are focused on the Rome section and strong enough to increase the existing staff to at least 6 to 10 units. For the Rome group the panel suggest to promote and give incentives to a stronger integration, already existing, with Rome University research groups, and to evaluate the performances of this integrated group before reinforcing it with investments in human capital.
- d. World-class level of ISE formation is an opportunity that has to be taken to reinforce the Institute. ISE has actually an activity of high-education formation particularly good and with a very high attractiveness of early career and senior scientist from other countries. It is a unique opportunity for the Institute and for the CNR to reinforce the ISE staff recruiting world-class early career scientists, who have had experience in ISE.

Istituto: Inquinamento Atmosferico - (IIA)

Voto Panel	93
Giudizio	World class

Panel Recommendations

- a. The management of the Institute need to find out incentives to increase scientific productivity along the main research themes that characterise IIA and contribute to the international recognition of the Institute. IIA scientific productivity is qualitatively very good. However, the outstanding research groups are not involving the whole researchers of the Institute and the average productivity per year is still lower that expected. The panelists recommend investments in human capital focused on the recruitment of highly productive and energetic early career scientists to take the leadership of the less strong groups; it would enhance the average scientific level of the Institute and also support excellency;
- b. Strengthening collaboration of IIA with other Institutes of the Department in the field of Earth Observation. Earth Observation is in the mission of IIA but it is among the major research themes of many Institutes in different CNR Departments. Panelists suggest to the National Research Council to promote incentives to the collaboration among these Institutes, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. This would reinforce the competitiveness of the Institutes and of CNR, increase the critical mass of CNR researches/technologists working on Earth Observation without creating new changes, at least at this stage, in the overall structure of the Institutes.

Istituto: Ricerca Sulle Acque - (IRSA)

Voto Panel	92
Giudizio	World class

Panel Recommendations

a. The management of the Institute need to find out incentives to increase scientific productivity, particularly along the main research themes that characterise IRSA and contribute to the international recognition of the Institute. IRSA scientific productivity is qualitatively very good but mostly thanks to few outstanding research groups, some of which characterised by researchers in a very advanced stage of their career. Average productivity is low and it will turnout either in a sharp restriction of the number of research lines of the Institute or in investments in human capital able to lead more effectively those groups, currently with low productivity, covering important research areas;

b. Strengthening collaboration of IRSA with other Institutes of the Department in the field of water (freshwater) research. IRSA, ISE and IRPI are all characterised by major scientific effort on thematic areas dealing with understanding structure and functioning of inland aquatic ecosystems, assessing their water quality and addressing management, mitigation, treatment and recovery. On these lines all three Institutes have strong national and/or international reputation. Panellists suggest to the National Research Council to promote at least incentives to the collaboration among these Institutes, e.g., with a CNR bonus for projects jointly applied and funded as participants or coordinators. Considering ISE and IRSA, which are also traditionally strictly related, the panel recommends the opportunity of establishing a new Institute of Hydrobiology and Water Research by merging one or two sections of ISE with the IRSA sections.