



ASSOCIAZIONE ITALIANA DI CARTOGRAFIA
ITALIAN CARTOGRAPHIC ASSOCIATION

STUDI MONOGRAFICI

6

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Summary of Principal Italian Cartographic Productions

Edited by

Giuseppe Scanu

President, Italian Cartographic Association

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LabGeoNet, Network of Italian Geo-cartographic Laboratories

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1. INTRODUCTION

First of all, we would like to express our thanks for the invitation to present a contribution to this important event and congratulate the Scientific Program Committee and the Local Organising Committee, in particular its Chairman Giuseppe Scanu (University of Sassari), who organised the XXX International Cartography Conference in a period marked by the pandemic.

The report we are presenting addresses and updates the results of the project to establish a network of university scientific geo-cartographic laboratories (LabGeoNet) already presented on several occasions, such as the meeting *Cartografia in Italia. Soggetti, produzioni, organizzazione, innovazione* (Cartography in Italy. Subjects, productions, organisation, innovation) held in Salerno, in December 2019, as a preparation for the ICC2021.

2. THE PROJECT, THE CENSUS, AND ESTABLISHMENT OF THE NETWORK

The experience gained in recent years within the community of Italian academic geographers has shown how and to what extent research and teaching

of geography (M-GGR/01 and M-GGR/02) in national universities are increasingly linked to the presence of laboratory facilities, which support these activities at every level of education (bachelor's and master's degrees, doctorates, etc.). The wide-ranging discussion resulting from numerous scientific comparisons has highlighted the laboratories' function as 'training devices'. They are structures that combine teaching activities with those of internships, integrate knowledge with skills, promote the improvement of methodologies dedicated to Cultural Heritage, develop Digital Humanities, produce research in theoretical and applied geography and cartography, and carry out actions related to the Third Mission. The laboratories also articulate and support funding applications at various scales: local, national and international.

In order to reach the existing workshop structures and start the systemisation of their experiences, in 2018 the Italian Centre for Historical-Geographical Studies and the Association of Italian Geographers, with the support of the Coordination of Italian Geographical Sodalities¹ shared a first census of the realities spread over the national territory. The survey had three main objectives of interest for the whole community:

- to initiate a process that would eventually lead to an exhaustive census of Italy's scientific geocartographic laboratories;
- to formally establish the LabGeoNet;
- to reflect on innovations and disseminate good practices.

The operation, which is cognitive and preliminary to further relations and forms of collaboration among geographers and, in perspective, among geography and other disciplines², institutions, societies and the market, has achieved interesting results.

Many structures, expressly called "laboratories" or with a different denomination, which support the research and teaching activities of geography teachers, have voluntarily responded to the questionnaire administered through an articulated online form. The data collected made it possible to create a number of useful working and communication tools, including the *Portale della rete dei laboratori geografici scientifici italiani* - Portal of the network of Italian scientific geographic laboratories (www.labgeonet.it), where each member structure has its

¹ SoGeI brings together the most important Italian associations and scientific societies in the field of geography, which are: the Association of Italian Geographers (AGeI), the Italian Association of Cartography (AIC), the Italian Association of Geography Teachers (AIIG); the Italian Centre for Historical-Geographical Studies (CISGE), the Italian Geographical Society (SGI) and the Society for Geographical Studies (SSG).

² Attention to the world of physical geography, with exchanges and meetings.

own page³ on which to upload its logo and a very brief presentation, with a link to its own site or institutional space if available.

The other important scientific result achieved was the elaboration of an initial quantitative and qualitative analysis of the situation, ranging from mere numerical data such as the list of teachers, technical personnel⁴, young people in training (with and without contracts) who worked or permanently attended those facilities, to the number of machines (and their types⁵) and software present in the laboratories⁶. Information was also collected on the main research carried out and in progress, on scientific projects launched and completed, whether funded or not, on the most popular topics and on the theoretical and practical applications of the studies themselves. Lastly, information was collected on the websites set up for this purpose and on the presence of the university on social channels in order to reflect on its openness to society and to digital communication.

The discussion of the network project and the return of this first state of the art took place on the occasion of the eleventh seminar of historical-cartographic studies *Dalla mappa al GIS (From maps to GIS)*, held in Roma Tre in March 2018, entitled *Laboratori in rete: ricerca, didattica, progettualità (Networked laboratories: research, teaching, projects)*. The following graphs and tables refer to that analysis (D'Ascenzo, 2019). The data that emerged show that the Italian academic geographic laboratories are quite well distributed across the national territory, albeit with a prevalent concentration in the centre and north. The structures surveyed present a wide variety of scientific and educational offerings, as well as the technologies they use and the skills they offer to universities and society. They are administratively based in many different departments, with a clear majority in the humanities (Table 1).

The latter data on the one hand show how geography dialogues with many other disciplines, and on the other, reflect the traditions of the individual structures, the cultural and economic contexts in which they operate and their relations with

³ An interactive map has been created on the site, locating the spatial distribution of the geo-cartographic laboratories belonging to the LabGeoNet (<http://www.labgeonet.it/strutture-afferenti/>).

⁴ The discussion is closely intertwined with the theme of training and the possibility of offering forms of collaboration and stable contracts to young people completing the various cycles, who possess solid technical and application skills. There is an obvious connection with the survey on academic precariousness in geography recently presented by AGel (Equilibri precari, May 2021) and to the problems of access to university careers not only as teachers but also as graduate technicians.

⁵ Multimedia workstations, fixed workstations, portable devices, servers and storage (physical or virtual), scanners and plotters, classrooms, cameras, drones/SAPR, GPS, laser scanners.

⁶ Open source and proprietary GIS.

local authorities⁷. An important element that helps to understand the orientation of the laboratories between pure and applied research is, in fact, the collaborations and networks within which they operate. Locally, there are partnerships with other universities, laboratories and centres for digital humanities, access to funds (PRIN, PON, ERC), relations with bodies (from municipalities to ministries, archives, libraries, superintendencies, parks), specialised companies, agencies and private institutions interested in the production of cartography.

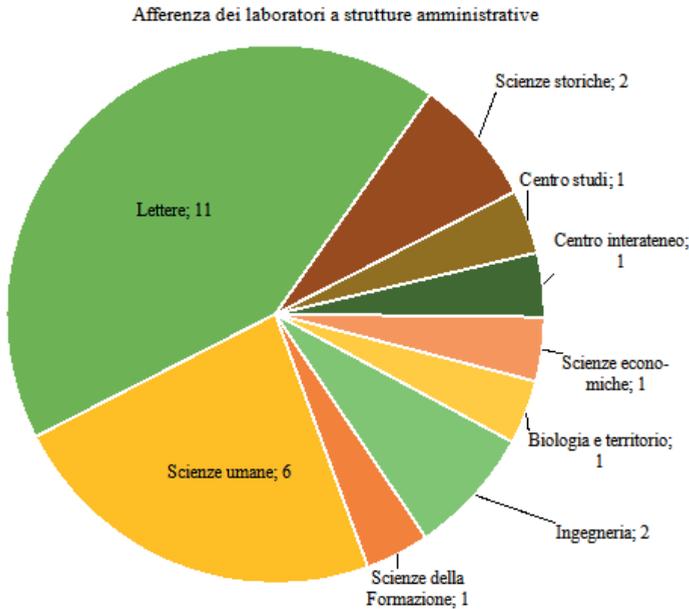


TABLE 1 - Administrative facilities of the LabGeoNet laboratories

All these elements determine the areas of research, which appear wide and varied. To simplify, we can reduce them to three macro-sectors (humanities 54%, technology 24% and economics 22%), but it is clear that almost all the laboratories use GIS and/or webGIS and produce cartography. The most structured realities are strongly devoted to spatial analysis and to the creation of complex systems of approach to the study of geographical reality, to the development of strategies and tools dedicated to the management of territorial and cultural assets (tab. 2).

⁷ For example, where training aspects related to teaching prevail, support activities for courses in Physical and Human Geography, or Geography Didactics, with practical workshops and exercises involving the use of cartography (at various scales, paper and digital) and other teaching tools.

Where laboratories can count on a good number of teachers, they tend to be involved in several levels of education (from undergraduate to doctoral degrees), and facilities also offer basic and advanced vocational courses (from those leading to certifications, such as ECDL-GIS, to second-degree master's degrees)⁸. At the same time, the larger groups are able to carry out more projects which are diversified in terms of purpose and clients.

The production of cartography appears to be a fundamental activity for Italian academic and scientific laboratories. This must be understood in a broad sense: known examples range from the production of thematic maps dedicated to and aimed at analysing and returning the results of scholarly research (essays, collective volumes, exhibitions, etc.), as scientific and popular publications (articles for magazines, manuals, historical and thematic atlases), in static and dynamic form (3D GIS modelling, webGIS), to experimentation with interactive forms of reconstruction and visualisation of geographical phenomena (flow analysis, historical GIS, storytelling, mental maps, portals, etc.).

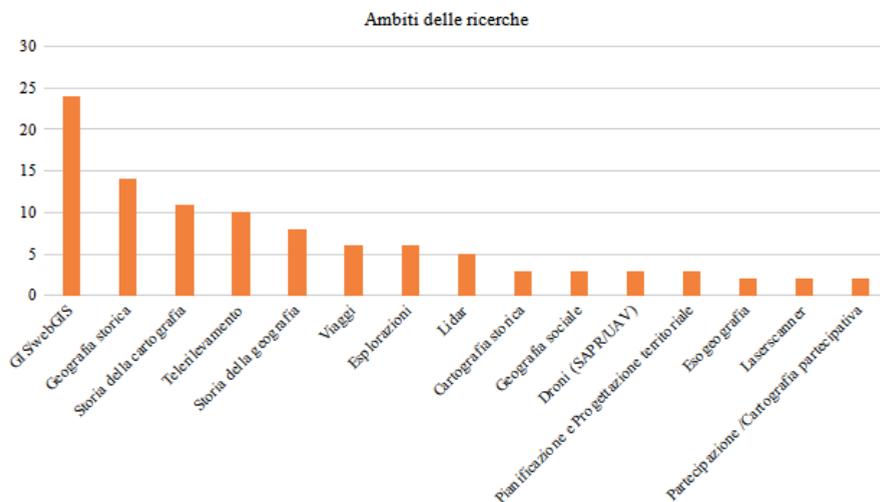


TABLE 2 - Main fields of LabGeoNet research

This shows the mature potential of the laboratories as structures for the production of maps for the world of research, as well as for the world of social demands and policy makers, and for specialised publishing. The first LabGeoNet project, which we will present shortly, is a demonstration of this.

⁸ In these cases there are spaces equipped with several workstations (classrooms) and software packages.

In order to carry out their projects and research, their surveys and graphical renderings, the most advanced laboratories in the network make use of numerous cutting-edge digital tools and technologies which, once tested and developed, can be offered externally (in agreement, by appointment, on behalf of third parties).

3. THE ESTABLISHMENT OF LABGEO.NET AND THE *ATLANTE COVID-19. GEOGRAFIE DEL CONTAGIO IN ITALIA (COVID-19 ATLAS. GEOGRAPHIES OF INFECTION IN ITALY)*

The constitution of the “Rete dei laboratori geografici scientifici italiani” (*Network of Italian Scientific Geographical Laboratories*) took place in Padua in September 2018, during the Geography Days. On that occasion, an executive representation of the LabGeoNet was appointed, and subsequently perfected⁹.

In the light of the conceptual renewal of cartographic interpretation, the recovery of topological space, the logic of landscape and the political and social objectives of cartography, the network has set itself the goal of representing all the Italian workshop realities, from those more oriented towards geomatics to those that refer to the theories coming from critical cartography, from the structures specialised in the history of cartography and in the use of geo-historical sources to those addressed to the elaboration of local development plans, participatory planning, social geography, just to mention a few examples.

Over the years, the network has expanded, and there are now around forty member laboratories with a wide national coverage.¹⁰

The strong determination of the AGEI presidency, and the drive imposed on the academic world by the spread of the SARS-CoV-2 pandemic, which saw Italy among the first countries in the world to be hit by the contagion, in particular Lombardy, defined as the ‘Italian epidemic epicentre’ (Casti, Adobati, 2020a), led to the realisation of the first joint scientific project: the *Atlante COVID-19. Geografie del contagio in Italia*. Understandably, the theme was, and still is, highly topical and has been at the centre of scientific debate in geography as well, as

⁹ The following were elected: Andrea Riggio as National Coordinator; Carla Masetti for International Relations and SoGel; Annalisa D’Ascenzo as Scientific Coordinator; Teresa Amodio, Luisa Carbone, Alessandra Ghisalberti, Giancarlo Macchi Jánica, Cristiano Pesaresi, Silvia Piovan, Paola Zamperlin for the Scientific Committee.

¹⁰ The list also includes two non-academic and non-public structures, because, as mentioned above, from the outset there was a clear desire to open up the network to other disciplinary fields and various realities, representing other interests and points of view on the national (and not only) territorial, social and economic reality.

evidenced by numerous recent publications and special issues of Italian journals in the subject area (see bibliography).

The Atlas plan was born as a national extension of the research undertaken by researchers at the University of Bergamo's Centre for Territorial Studies-DiathesisLab, aimed at investigating why the spread of the contagion took on the devastating scale found in the Bergamo area, particularly in the so-called 'first phase', i.e., February-June 2020 (Casti 2020 a-b; Casti, Adobati, 2020 a-b).

Andrea Riggio and Emanuela Casti coordinated a large group of 22 units from as many laboratories - and 96 researchers - who discussed the theoretical assumption that contemporary living is based on mobility and urbanity, in order to verify the territorial importance assumed by the phenomenon and how transmission occurred locally, through reticularity and/or proximity, producing a reflective mapping that explains the territorial peculiarities. The reasoning revolves around the lengthy discussion carried out by the laboratories and researchers¹¹, which has shown how the emergence of outbreaks, the spread of contagion and the virulence of the disease in certain regions are to be sought in the holistic socio-territorial aspects that determine their diversity and their multi-scalar functioning. (Casti, Riggio, 2022).

In fact, each regional unit conducted its research on the basis of direct knowledge of the territory, with its structural characteristics, associating it with data on contagion and health organisation provided by the State administration and bodies (e.g. the Ministry of Health, the Higher Institute of Health, the National Institute of Statistics, the Regions, regional agencies for environmental protection, municipalities, etc.), but also from newspapers and social networks, from interviews, not excluding personal experience and knowledge of the phenomena underway that are still difficult to quantify and serialise. The processing of the data and information has led to a national analysis, which shows a differentiated situation not only between regions, but also between municipalities in the same region. In particular, the centralising role of all phenomena, including virus circulation, emerged in strongly systemic realities such as metropolitan cities. In order to simplify, the interpretation of the composite reality of our country has been brought down to a threefold division which, however, obviously does not fully account for the complexity, at the various scales, nor does it exhaust the need to deepen and continue the research, which, in fact, is expected to resume applied to the following period.

¹¹ A number of study and discussion meetings were organised within the network, with working webinars and regional research feedback open to the public.

4. CONCLUSIONS

Reflective mapping on coronavirus infection was carried out by LabGeoNet laboratories using GIS and other spatial data processing programmes. The *Atlante COVID-19. Geografie del contagio in Italia*, which will be published digitally by the AGEI publishing house, has an initial part dedicated to the synthesis of regional cases and to a reflection on the epistemological need to change the lens to look at a complex phenomenon such as COVID-19. This is followed by regionally structured studies, each analysis consisting of a predetermined number of explanatory composite tables and accompanying analysis texts. Of these, the first section is devoted to themes common to all, with shared approaches and references, flanked by others devoted to locally relevant phenomena highlighted by the researchers.¹²

The tables correlate the territorial and socio-economic aspects, highlighting the lifestyles that had such an impact on the timing and methods of the spread of the contagion in the first phase, with some reflections also projected onto the second phase, always taking into account the trends in transmission and trying to identify local weaknesses or, on the contrary, the operations that proved effective in containing the virus. This brief presentation clearly shows the enormous amount of work carried out by the group of participants in the network of Italian scientific laboratories. The researchers have produced an articulate territorial and social analysis, equipped with a very rich graphic apparatus (topographical maps, anamorphoses, graphs, indexes, etc.) in close synergy with the accompanying texts. Below are some illustrative tables from the Atlas.

¹² For example: population distribution, age composition, settlement, organisation of regional health systems, location of hospitals and assisted living facilities, mobility flows and patterns, labour systems, pollution, morphology and climate. From sources to scales of detail (where possible, i.e., when data were available, which was and is a major problem), ranges, and layout.

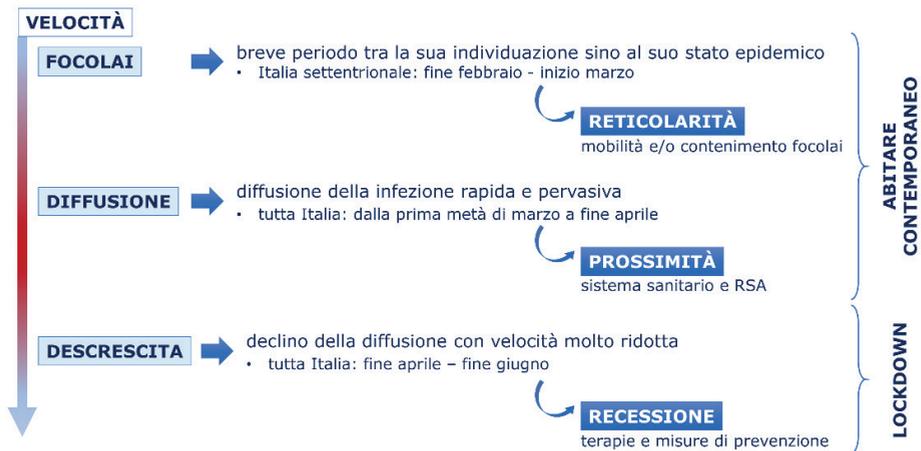


FIGURE 1 - The phases of virus propagation with different speeds in relation to social and territorial factors

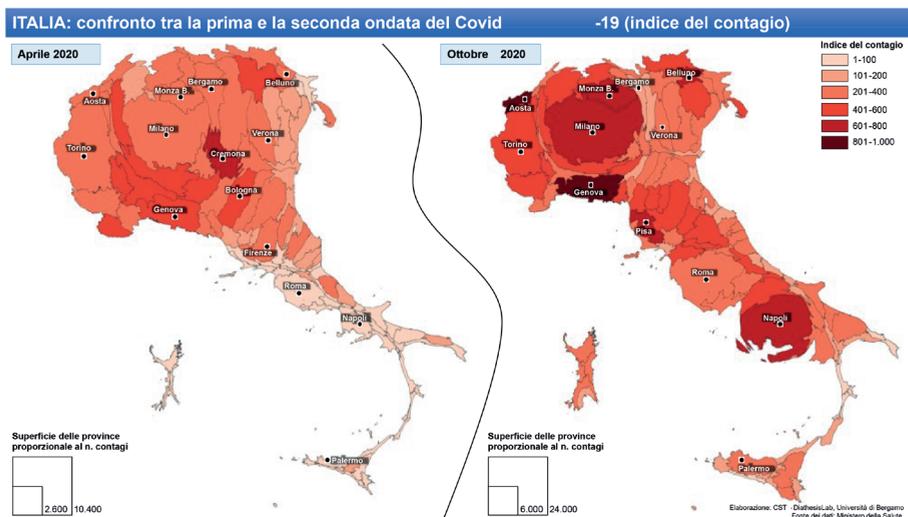


FIGURE 2 - Italy's anisotropic shape in the first phase of the pandemic and the trend towards epidemiological alignment in the second phase

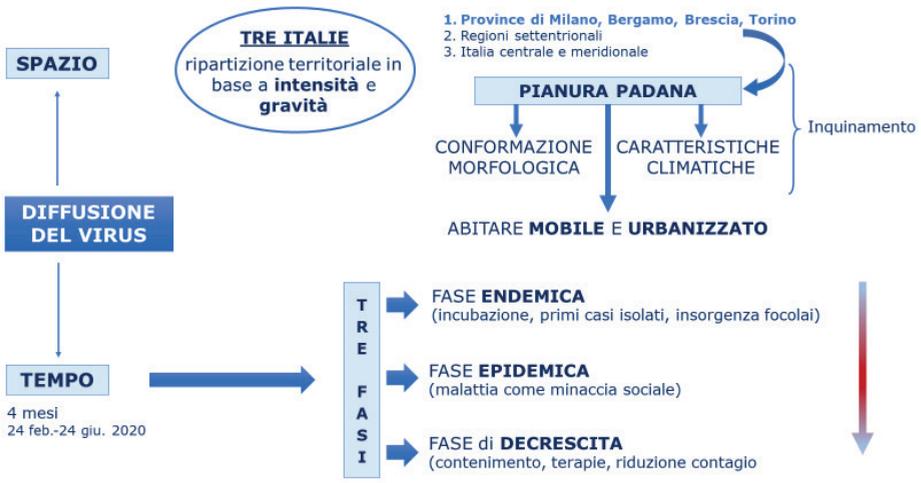
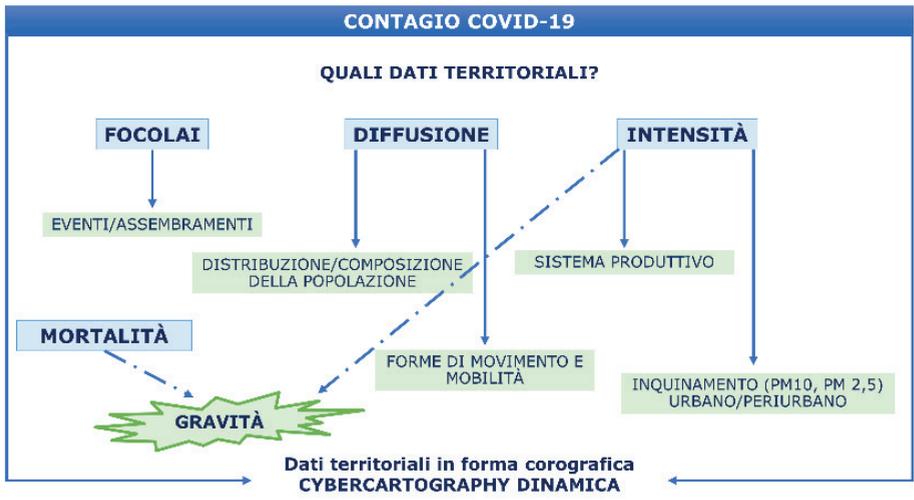


FIGURE 3 - Spatial data used for the analysis of COVID-19 infection and the three 'Italies' in the spatio-temporal spread of the epidemic

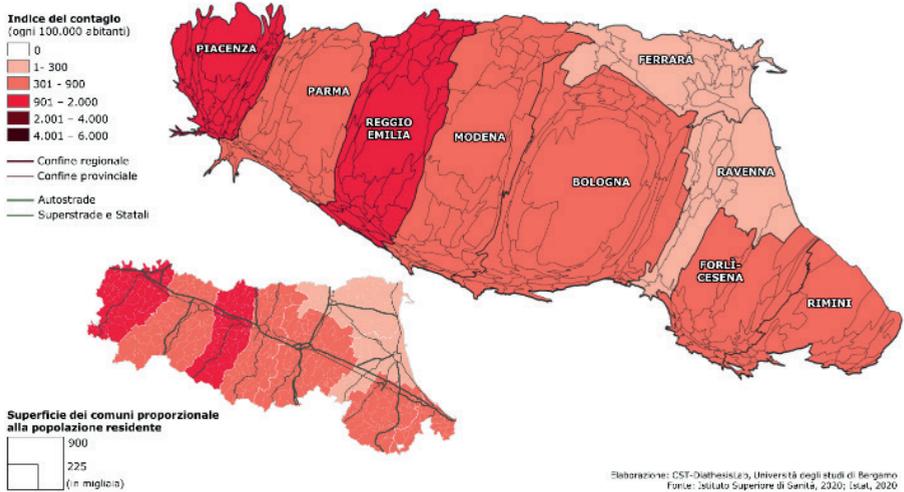
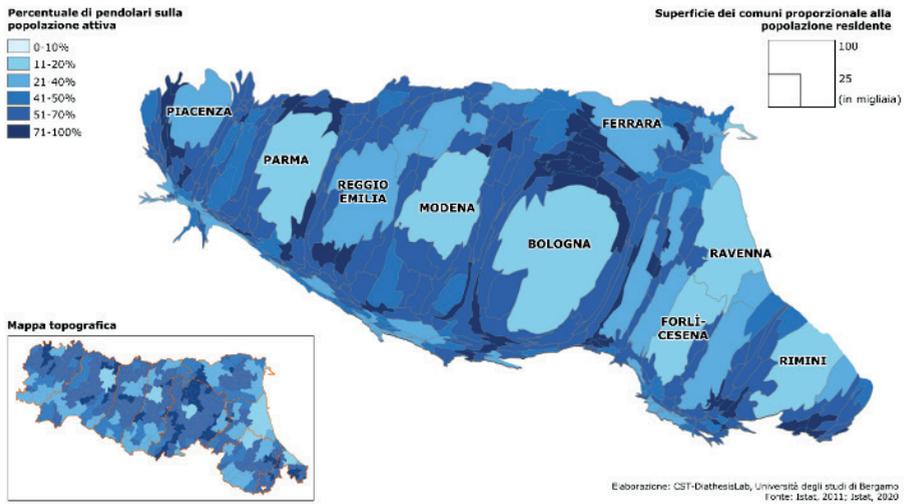


FIGURE 4 - Evolution of the COVID-19 infection in Emilia-Romagna in relation to the resident population and the flow of incoming commuters for work in the provincial capitals

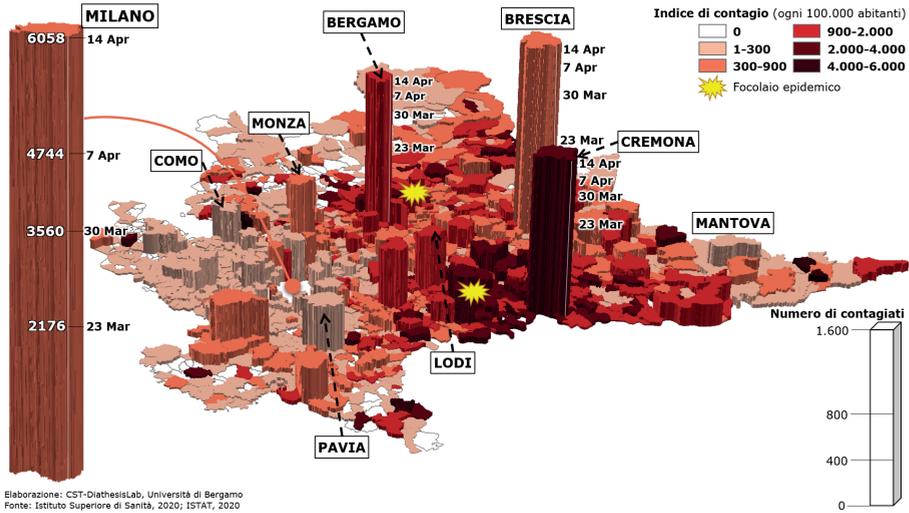


FIGURE 5 - Municipal distribution of infection in Lombardy from 24 February to 14 April 2020

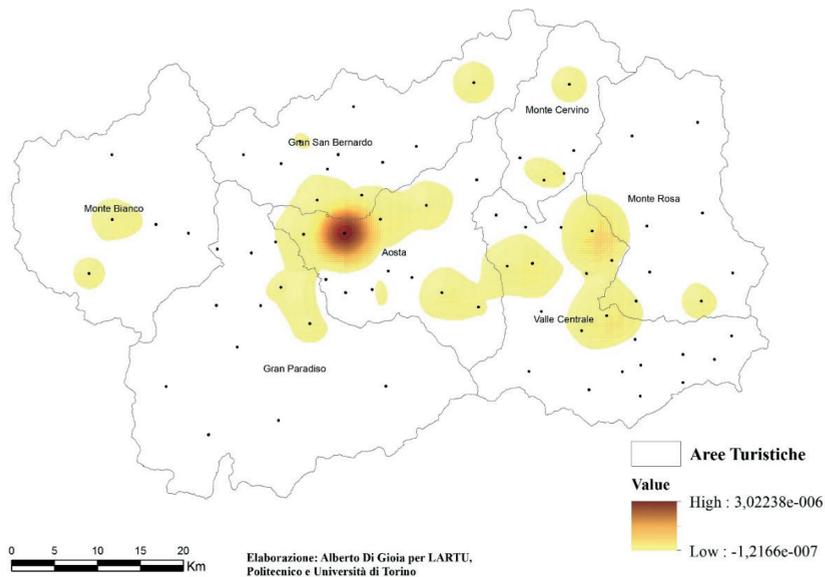


FIGURE 6 - Over-mortality by tourist areas in Valle d'Aosta in the lockdown period (XI-XVIII weeks). Source: ISTAT data processing, 2020