1. Lithostratigraphy of the Palaeozoic of the Carnic Alps

Studies on these topics started in 1976, focusing from time to time on different parts of the Carnic Alps, basically throughout the whole Italian side of the Carnic Alps, including the Palaeozoic, the Triassic and the Quaternary successions. At the moment, the main topic is the study of the lithostratigraphy of the Upper Devonian-Lower Carboniferous pelagic limestone (Pal Grande Formation), and of the Lower Carboniferous-Upper Carboniferous p.p. Hochwipfel and Dimon Formations. The Quaternary sediments and morphologies have been studied for reconstructing the evolution of the depositional environments and of the climatic controls.

Personnel involved *- Palaeozoic: E. Farabegoli, M.C. Perri, M. Pondrelli, C. Spalletta and C. Venturini*
Triassic: M.C. Perri and C. Venturini
Quaternary: C. Venturini

2. Conodont biostratigraphy of stratigraphic sections across the Frasnian-Famennian (Late Devonian) and Famennian-Tournaisian (Late Devonian-Early Carboniferous) boundaries

This study started in 1995 and involves analysis of stratigraphic sections throughout the Italian side of the Carnic Alps. Together with the biostratigraphic analysis, taxonomic and biofacies studies are carried out, associated with detailed lithostratigraphy, sedimentology and isotope analysis of the studied sections. In correspondence or next to these stratigraphic boundaries, some of the famous Devonian events have been identified in many locations in the world. The aim of this study is first of all to precisely identify the stratigraphic boundaries and then to infer which factors, whether climatic or tectonic, controlled the evolution of the depositional environments through time. The ultimate goal is to verify if the same global controls that caused the deposition of black shale intervals during the so-called events in many parts of the world, had some kind of sedimentological response also in the Carnic Alps. Up to now, the only black shale level identified in the Carnic Alps (Zermula area) within the limestone sequence of the Pal Grande Formation is corresponding to the Hangenberg Event. The conodont researches of the last years have highlighted the presence of the upper Frasnian biological crisis (Lower and Upper Kellwasser Events) even if black anossic levels present worldwide in many localities are lacking in the Carnic Alps.

Personnel involved *- E. Farabegoli, M.C. Perri, M. Pondrelli and C. Spalletta*

3. Biostratigraphy, taxonomy, palaeogeography, and palaeoecology of Devonian-Carboniferous conodonts

This study started in 1978 and several Devonian-Lower Carboniferous stratigraphic sections located in the Italian side of the Carnic Alps have been analysed or are under analysis. The recent researches are focused mainly on the Upper Devonian-Lower Carboniferous Pal Grande Formation.

Personnel involved *- M.C. Perri and C. Spalletta*

4. Tectonic evolution of the Carnic Alps

This project started in 1996 in association with the analysis of the thermal evolution, by mapping folds and fractures in selected areas throughout all the Carnic Alps. More than 30 localities distributed along the entire belt have been selected to measure the movement indicators along the faults, in order to obtain, through a statistical analysis, the stress fields through which the different deformational phases occurred. The aim of this project is to reconstruct the deformative evolution of the Carnic Alps to correctly unravel the many structural features and reconstruct the original position of the depositional environments. The combined analysis of the depositional environments, of the fossil assemblages and of the deformative styles can concur to reconstruct the geodynamic history of this area in association with the other circum-Mediterranean Palaeozoic belts.

Personnel involved *- M. Pondrelli, C. Spalletta and C. Venturini*

5. Educational activity

It is focused on the Paleozoic-Mesozoic successions of the Carnic Alps and their Quaternary covers. The actions are devoted to students of secondary school (sometimes also of primary school) and to a wide audience fond of territory and its geological, geomorphological and palaeontological features. The first educational effort dates back to 1983 with the temporary exhibition *"Il Paleozoico carnico: le rocce, i fossili, gli ambienti"* (52.000 visitors).
The geo-education still goes on with the following activities (last five years):

a. Geoday. Since 2000 and once a year, a field trip of one or more days is organised across the Carnic Alps and its surroundings.
b. Permanent exhibition "L'alta Valle del But (Alpi Carniche): una storia scandita dalle acque nel tempo". The exhibition, since 2011, includes fifteen big explanatory panels placed outside of the 'Centro Visite Laghetti' (Timau, UD) devoted to illustrate the Palaeozoic and Mesozoic modifications of the Carnic Alps through the geological time and their Quaternary evolution.
c. Periodical public conferences. They are focused on topics related to the Carnic Alps. Since 2011, they amounted to 22.
d. Web sites. Part of them is devoted to illustrate the Carnic Alps, dealing with geological and geomorphological features and their evolution through the time. The

sites are www.edu-geo.it and www.corradoventurini.it. Many of the quoted activities are shown in the latter one.

Personnel involved: C. Venturini

e. Permanent exhibition "Quando Pramollo stava all'equatore - When Pramollo-Nassfeld was at the equator". It is a multi-media interactive permanent show opened on July 2015 and sponsored by the Comune di Pontebba (UD). It is devoted to illustrate - both in Italian and English - the Pramollo-Nassfeld Late Carboniferous palaeoenvironments and their rich fossil content.

Personnel involved: C. Venturini, A. Baucon

f. Educational books. They deal with geological and geomorphological topics related to the Carnic territories. Since 2011, they are 4 volumes.

Personnel involved: C. Venturini, G. Muscio

g. Educational 3D videos. They are centered on geological and geomorphological topics related to the Carnic territories consisting of two short .avii files (2011) concerning the Quaternary evolution of the But Valley. More in detail they deal with i) large palaeoslides and extinct lakes; ii) the shifting of the Adriatic and Black Sea watershed during the last half million years.

Personnel involved: A. Astori, C. Cisotto, C. Venturini