„Der Mohr hat seine Schuldigkeit getan, der Mohr kann gehen"

Fr. Schiller – Die Verschwörung des Fiesco zu Genua, 1782 (Muley Hassan, 3. Akt, 4. Auftritt)

„The Moor has done his duty, the Moor can go"

Fr. Schiller – The Conspiracy of Fiesco at Genoa, 1782 (Muley Hassan, Act 3, 4th perf.)

IN MEMORIAM

DR. SORIN-CORNELIU RĂDAN (1945-2018)

On Sunday, November 11, 2018, our good and beloved colleague **Sorin-Corneliu Rădan** passed away. He was my younger brother. He IS my younger brother. He was, is, and will remain my best and closest collaborator. It is difficult to write an article *in memoriam* for somebody who was so close, not only through professional ties, but also through blood ties, and to remain unbiased. For me, it is hard to talk about him in the past. Our lives and careers have been intertwined. At a distance of nearly two years, we went through the same kindergarten, the same school and the same faculty. Here we have separated, I followed geology, he, a math enthusiast since high school, chose geophysics. We started working in two different research institutes, that are today unified under the Geological Institute of Romania. In 1995, I moved to GeoEcoMar, but as his lab was located in the GeoEcoMar building, our collaboration remained permanent. Over the last two years we have even shared the same office. Our scientific collaboration started in 1973; it comprises several common research projects and dozens of published papers, and is still continuing today, as more joint papers are waiting to be finished. These are the circumstances in which Sorin, my brother, my friend, my colleague, my collaborator, has departed.

LIFE AND MAIN PROFESSIONAL STAGES

Sorin was born on September 13, 1945, in the little parochial house of Meliceşti village, a settlement spread out on the hills, with no electricity and with no paved roads, not far from Câmpina. He spent his childhood in Slănic Prahova, where he attended school and graduated high school in 1963, as head of his class.

In the fall of the same year, he enrolled at the Faculty of Technical Geology - Geophysical Prospecting Section of the Institute of Oil, Gas and Geology. He graduated in 1968 and became a geophysical engineer. He passed the bachelor's exam with a thesis having as a theme to elaborate a map of the relief of the crystalline basement in the Lower Basin of Strei River on the basis of gravimetric data, a work for which he received the maximum grade. The results of the thesis were subsequently published in a scientific journal of the Romanian Academy (Rădan, 1970). This was the first paper published by Sorin and his only work in the field of gravimetry. The supervisor of his bachelor's work was Professor Liviu Constantinescu, an academician, who later also supervised his doctoral thesis, a reputed scientist, a professor Sorin admired and loved as his model until the end of life. The respect for his teachers and mentors has always characterized him. Acad. Prof. Marius Visarion was another personality he held in great esteem

In the autumn of 1968, Sorin became a researcher at the Institute of Applied Geophysics (I.A.G), an institute that later merged with the Geological Institute (1974), resulting the Institute of Geology and Geophysics (I.G.G), which, later (1994), became the Geological Institute of Romania (G.I.R). He then went through all the levels of the scientific hierarchy, from scientific researcher to senior researcher grade I (2000). In 2017, already retired, he was granted the title of honorary scientific researcher of the Geological Institute of Romania, status that he accepted with great satisfaction, in acknowledgement of his activity after retirement.

In 1999, he became "Doctor in Geology" with the distinction *„Magna cum laude"*, at the University of Bucharest. His doctoral thesis "Contributions to the study of the magnetic properties of rocks in geophysical and geological context", synthesizes the results of an activity carried out for a quarter of a century. In 2000, he was awarded the "Gheorghe Munteanu - Murgoci Award" for the year 1998, conferred by the Romanian Academy for the paper titled "Study of the geomagnetic field structure in Tertiary in the context of magnetostratigraphic scale elaboration I - The Pliocene" (Rădan & Rădan, 1998 a).

He retired in 2010, after 42 years of professional activity, but he continued to work at G.I.R. another 2 years with individual work contract – part time, until 2012. Another 6 years of *pro bono* scientific activity followed for the benefit of two institutes - G.I.R. and GeoEcoMar. He was a hard worker and it was his will to continue to pursue the activities that brought him satisfaction throughout his life. For some, he was perhaps just a "bizarre person", who often stayed late at the office, sometimes „managing" to miss the last bus home. Friday, November 9, was his last working day. We left the office at 7 o'clock, the next day we went together for a short visit to Slanic, and on Sunday, 11th November 2018 morning, around 7 o'clock, his soul left discreetly the parental home, the place he loved the most, and where he hoped one day to retire.

However, I believe he did not die suddenly on November 11, 2018, as it is known. Deeply passionate about his profession and career, he started to die a little on November 11, 2010 - his first day as a retiree, then after 2 years, on Friday, November 9, 2012, his last day working part-time at the Geological Institute, or, maybe, even on Friday, November 9, 2018, his last working day, after exactly six years of p*ro bono* work. The laboratory he created in 1974 began to reduce its activity (due to the diminishing of staff) and its working space (for administrative reasons), the three rooms it occupied being reduced to two, then one, and finally, in the spring of 2017, just half a room, in the office that the two of us shared. The magnetic susceptibility analyzes on bottom and core sediments, performed for almost four decades, ceased by the end of 2015, and were no longer considered useful for the new Danube Delta monitoring approach. His direct contribution was suddenly over. Perhaps, to some, *once his duty was done, he could or should have gone*. He "left" three years later.

The analytical records collected by measurements on thousands of sediment samples from the Danube, the Danube Delta and the Black Sea are, however, an useful and usable database for many specialized studies. Sorin continued to process the stored information, and when he passed away, he was working on a paper to be published in GEO-ECO-MARINA. His collaborators will complete it and other papers will follow.

SCIENTIFIC ACTIVITY

From graduation, to the end of his life, Sorin pursued his professional-scientific activity in the same workplace. For him, it meant loyalty and devotion to the development of a field that he embraced with passion and which he developed until his untimely end. Among others, at a time when G.I.R. has gone through a difficult period, and some researchers have migrated to other institutes, in spite of the fact he had received a "rescue" offer from another institute, he stayed for reasons of loyalty: loyalty for the institute where he formed as a scientist and for the laboratory he had created and developed with much competence, patience, perseverance and determination.

He began his work by initially approaching the domain of magnetometry, but soon, after 1972, his major interest would be polarized by the study of rock magnetism, then of paleomagnetism and magneto-stratigraphy. His initial focus was further extended from the old geological formations to the recent sediments, as well, in riverine, lake and marine areas, initiating the development of new techniques and methodologies, specific to the underwater domain. This fact contributed to the development of the environmental magnetism, the domain to which he has paid the most attention over the past two decades.

The main areas of his professional-scientific activity are presented in the following lines, in more or less chronological order. An exact chronology is difficult to capture, given that over time these areas have overlapped or intertwined.

The beginnings are linked to the period of the Institute of Applied Geophysics (*1968 – 1974*), and are related mainly to **magnetometry**. He was involved in magnetic and micromagnetic surveys performed for the elaboration of maps of the vertical component of the geomagnetic field (ΔZ) and for the anomaly of the vertical component of the geomagnetic field (ΔZa) for the territory of Romania. During 1968-1972 he led the " Field Team of Magnetometry", contributing to the realization of the map sheets - Tg.Jiu, Baia de Aramă, Craiova, Sibiu, Braşov , Turnu-Severin, Bacău, Bârlad, Huşi, Fălciu and Iaşi. Some of his first published papers concern the magnetic surveys carried out for the elaboration of these magnetic maps - scale 1:1,000,000, (Airinei *et al*., 1983, 1985) and scale 1:200,000 – Tg. Jiu sheet (Airinei *et al*., 1972).

A series of micromagnetic surveys, with applications to mapping the deposits of mineral resources, have been used to explore a magnetite separation within the crystalline rocks from Valea Putnei - Mestecăniș (Roth & Rădan, 1974), or have been tested in geotechnics and archaeology.

The year 1972 represented an important moment for the beginning of his specialization in a more complex discipline – rock magnetism and paleomagnetism. This was a first documentary visit (30 days) at the Institute of Applied Geophysics in Brno (Czechoslovakia), focused on "Field and laboratory methodologies for studying the magnetic properties of rocks".

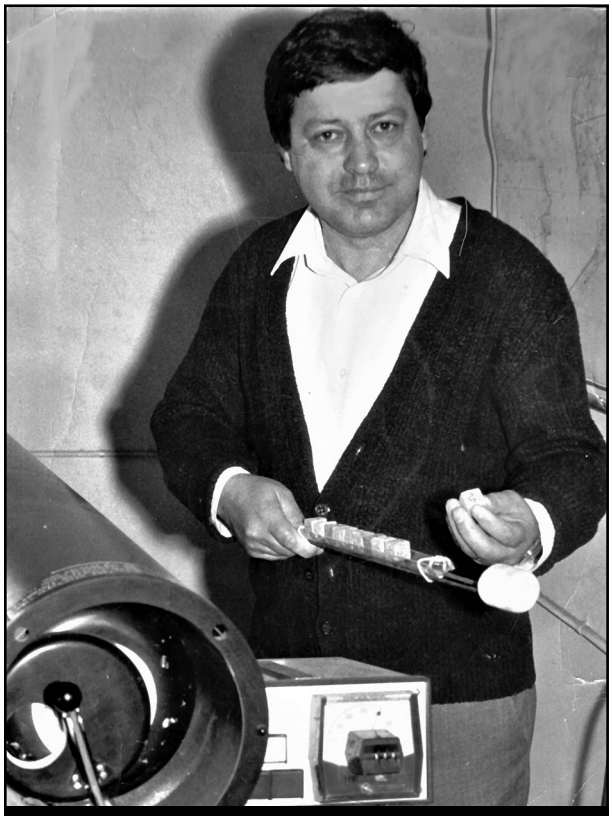
In the period following the merge of the Institute of Applied Geophysics and Geological Institute (1974-2012) Sorin began to reduce his involvement in magnetometry activities and started the work for the organization of a rock-magnetic and palaeomagnetic laboratory and a measuring base for (petro)magnetic investigations in the field, in order to enable the development of new fields of research: **rock magnetism**, **paleomagnetism, magnetostratigraphy** and **environmental magnetism**.

The organization of a modern laboratory would not have been possible without a serious specialization in the new approached areas of investigation and without the tenacity and perseverance required to obtain funds for advanced technical equipment. After the aforementioned visit, there were many other documentation and specialization stages (some at his expense) at petromagnetism and paleomagnetism laboratories in Czechoslovakia (Brno - 1974, 1979, 1990 and Prague - 1974, 1979, 1983, 1985), Ukraine (Kiev – 1975), Russia (1978), Great Britain (Nuffield, Newcastle upon Tyne and Edinburgh – 1980), Hungary (Budapest – 1980, 1983), Germany (Potsdam – 1984), Poland (Warsaw and Belsk – 1986), The Netherlands (Utrecht - 1996).

The documentation stages performed in Brno (1974) and Kiev (1975) have facilitated the personal carrying out of laboratory analyses, that produced the first results of anisotropy of magnetic susceptibility (on rock samples from the perisynclinal area of Iazuri), respectively of paleomagnetism (on a collection of samples of Miocene and Senonian red marls in the area of the Sub-Carpathian Curvature). The data were communicated in 1976, at the National Geophysical Symposium.

In addition, Sorin had a good opportunity to acquire new skills even in our country, during the visits of two scientists specialized in the field of paleomagnetism from the USSR (Russia and Ukraine) in 1977 and 1978, periods (totaling about 3 months) in which progress has been made in both phases of paleomagnetic investigation: field and laboratory.

In this context, the setting up of a laboratory, devoted to activities specific to rock-magnetism and paleomagnetism surveys, was imperative. Sorin took over some of the existing devices, then he intensified the activity dedicated to obtain funding for the future *Laboratory of Palaeomagnetism, Rock Magnetism and Environmental Magnetism*. Finally, he succeeded to acquire the minimum equipment for starting petromagnetic research in the years 1974-1975. Efforts to continuously modernize and expand the field and laboratory metrology base continued with the acquisition of the new proton magnetometers, Geometrics G - 826 (USA). The development of the anisotropy studies of magnetic susceptibility and paleomagnetism, respectively, has become possible in the Institute of Geology and Geophysics since 1978, when, following Sorin`s efforts, the "ANISO-10" program (from Czechoslovakia) and the Schonstedt TSD-1 thermal demagnetizer (from the USA) have completed the lab. In 1978, a Romanian proton magnetometer with underwater sensor (MPP-78) was developed in collaboration with the Institute of Physics and Nuclear Engineering (IFIN) - Măgurele. The technical base was completed in 1982 with equipment from Czechoslovakia (a JR-4 spinner magnetometer, a Kappabridge KLY-2 and a kappametre KT-5), including interface modules for direct connection to computer, printer or plotter.



Working in the Laboratory (the end of the years 70s)

After this period of development, the acquirement of new knowledge (knowhow) and the creation of new research directions, the results did not delay to appear. The development of a new version of the "micromagnetic technique", based on measurements with the proton magnetometers was tested and successfully applied for bauxite lenses of Pădurea Craiului Massif (Rădan *et al*., 1980, in Rădan, 2014a). The data were used both to evaluate the capability of the high-resolution magnetic survey to map the bauxite lenses, and for the elaboration of a **palaeomagnetic study** by which it has been established a *clockwise rotation of the study area*, interpretation consistent with the existing geotectonic model (Rădan, 2014a).

In the field of rock magnetism, other petromagnetic results, which are among the first published, regard the magnetic susceptibility of the Devonian epimetamorphic schists from the Iazuri perisynclinal zone (Poiana Ruscă Mountains, Southern Carpathians) (Rădan & Rădan, 1980 a,b, 1981, 2012). The huge data bank (50,000 magnetic susceptibility values obtained for cores extracted from 37 exploration wells) led to the first results of magnetic susceptibility anisotropy (Rădan

& Rădan, 1981). Besides, the isosusceptibility maps allowed a (paleo)sedimentological interpretation – the identification of several supply directions for the iron minerals, genetically connected with the volcanogenic material (Rădan & Rădan, 1980 a).

Moreover, also among the first published rock-magnetic data, but for eruptive rocks, are the results provided by the studies carried out on Neogene magmatic structures from Brad area (Metalliferous Mountains). The data obtained offered a clear characterization - from the point of view of the paleogeomagnetic polarity - of the phases of eruption known in the study area (Ghițulescu *et al*., 1983).

A particular contribution of Sorin to the development of new investigation methods was the introduction of the **magnetostratigraphic and palaeomagnetic** studies in the activity of his laboratory.

The first magnetostratigraphic results were obtained on several Pliocene and Pleistocene sections from Braşov Depression and Perşani Mountains, consisting of volcanic, volcano-sedimentary and sedimentary deposits and were published in the *Guidebook for the INQUA / SEQS field excursion* (Ghenea *et al*., 1981). The most complex studies of magnetostratigraphy and paleomagnetism were mainly dedicated to the *loess-paleosoil sequences* of Dobrogea and to the *Neogene coal bearing formations* from the Dacian Basin.

Since 1982-1983, the magnetostratigraphy has been applied on **loess - paleosoil sequences** in order to increase the dating resolution (Rădan & Rădan, 1990, Rădan *et al*., 1984, 1990, Ghenea & Rădan, 1993). This is the case of the geological map of Romania - scale 1:50,000, particularly the «*Peştera*" and „*Medgidia*" sheets. On their imprints, paleomagnetic data associated with the lithostratigraphic columns in Quaternary formations – *North Mircea Vodă*, respectively *East-Nazarcea* were published. Part of the magnetostratigraphic results, *e.g*., related to *Cernavodă* and *Costineşti-South* sections, were firstly included in the *Guidebook for the KAPG field trip* (Rădan *et al*., 1984).

A substantial synthesis of the results obtained in Romania in the loess magnetostratigraphy was presented by Sorin in Chapter 2 of the *Field Guidebook* published on the occasion of the *INQUA-SEQS Meeting* held in September 2013, in Constanța-Romania, devoted to the *Correlations of Quaternary Fluvial, Eolian, Deltaic and Marine Sequences* (Radan et al., 2013). Reinterpretation of a profile from Zimnicea, analyzed in 2000, allowed him to launch the assumption of the *Brunhes / Matuyama* limit interception (0.78 million years), which would represent its first detection in Romania on such cyclic loess-paleosoil sequences. In addition, an overview of the data resulted from the magnetic multi-proxy approach of the loess - paleosoil sequences from Southern Romania was the subject of a short note (Rădan, 2014b), presented at the *IGCP 596 & 580 Joint Meeting* in Mongolia (August 2014).

Following loess-paleosoil sequences in the 2 Mai section (September 25, 2013)

The second important application of the **rock-magnetism and paleomagnetism/ magnetostratigraphy** was devoted to the investigation of the **Neogene formations** from the Dacic Basin. It is worth to note that in 1969, the regional magnetic measurements made in Northwestern Oltenia in order to draw up the ΔZ/ΔZa maps, a magnetic anomaly was proved to be produced by a layer of „baked clays" accompanying a coal seam. Additional laboratory investigations on raw and heated clays showed, for the first time, the significant thermoremanent magnetization of porcelanites and, therewith, the disappearance of the clay minerals and the appearance of some magnetic minerals have been revealed (Roşca *et al*., 1973). This finding, represented *the start of rock magnetism investigations*, and will be intensively approached in the following years. Afterwards, starting with 1982, the magnetostratigraphic studies have been continuously developed and applied on the *coal bearing formations*, well exposed in the lignite quarries from the Western Dacic Basin (*WDB*). In the following years, Sorin and his team performed numerous integrated studies of rock-magnetism, palaeomagnetism, magnetic survey, thermo-mineralogy, stratigraphy, sedimentology, geochemistry, concerning the Pliocene cyclic lignite-clay sequences. More than 40 papers, notes and reviews have been authored or co-authored by Sorin between 1983-2014, on these topics.

Participants at the 2013 Meeting of INQUA-SEQS at Mircea Vodă loess section (September 25, 2013)

The **paleomagnetic** investigation of the lignite quarries (Lupoaia, Poiana/Rovinari East, Cicani, Pinoasa, Peşteana North, Peşteana South, Jilţ South, Husnicioara), the cores from several drillings and some natural outcrops (Berbeşti, Drănic-Jiu) contributed to the **first cronostratigraphic calibration** of the Dacian and Romanian formations (Rădan, 2000, 2002, Rădan & Rădan, 1996, 1998, 2001, Rădan *et al*., 1996 a,b, Rădan, in Andreescu *et al*., 1986, Rădan, in Jipa & Olariu, 2009), with outcomes for the improvement of the lignite layers synonymization and for their spatial and temporal correlation. Additionally, a fragment on the Sarmatian (stage) resulted from the magnetobiostratigraphic investigation of the "Scăricica" section in the Comăneşti Basin (Rădan & Rădan, 2001, Rădan, 2002). A synthesis of these feats was presented by Sorin in a chapter („*Toward a reliable chronostratigraphic and geochronologic framework of the Dacic Basin*") included in a special monograph of the Dacian Basin published by GeoEcoMar (Rădan, 2009, in Jipa & Olariu, 2009).

The rock-magnetic and paleomagnetic data obtained on **porcelanites/clinkers** are of particular interest, due to their fundamental and applicative research qualities. The original raw clays, thermally non-affected, have recorded a reversed polarity, whereas the synchronous porcelanite layers have printed a normal polarity of the geomagnetic paleofield. The former polarity zone was assigned to the *Gilbert Chron*, namely to the lower part of the *C2Ar Subchron* (*ATNTS-2004*; 4.187 – 3.596 Ma), whereas the latter was assigned to the *Brunhes Chron* (*ATNTS-2004*; 0.781 – 0.00 Ma), suggesting the paleofire occurring during this last period (Rădan, 2003; 2008). Paleo-/rock-magnetic, thermomineralogical and geochemical signatures were recovered from porcelanites and clinkers — markers of this past natural autocombustion phenomenon — and then, have been analysed within a series of studies presented or published in the framework of specialised conferences, held in Berlin - Germany (*Second International Conference on Coal Fire Research*, 19-21 May 2010), or Guimarães-Portugal (*International Meeting of Fire Effects on Soil Properties*, 15 - 19 March, 2011) (Rădan & Rădan, 2011 a,b). A special achievement was the special chapter concerning the „Paleo-coal fires in the Western Dacic Basin" included in a vast monograph, titled „*Coal and Peat Fires: a Global Perspective*", published by Elsevier (Rădan & Rădan, in Stracher *et al*., 2013).

The introduction of **magnetometry** methods in the **study of submerged areas** represented an original research direction. In 1978, the Romanian proton magnetometer with underwater sensor (MPP-78) was successfully used by Sorin's team in the Danube Delta and the Razim – Sinoie Lagoon Complex, as well as along the Danube River, where – for the first time – magnetic profiles were recorded. A methodology for petromagnetic investigation of bottom sediments and cores was developed, based on the use of a high sensitivity device (Kappabridge KLY-1), usually designed to determine anisotropy of magnetic susceptibility of rocks. A new technique of "underwater magneto-susceptibilimetry" was tested

in the Danube Delta in 1980, based on an adaptation of a GM 250 susceptibilimeter to record profiles in the lacustrine areas, In this way, a substantial archive of magneto-susceptibilimetric and magnetic data, useful for sedimentological and structural interpretations has been accumulated. The end results permitted the detection of the fossil sand ridges from the lakes and canals bedrock, the identification of the sediment supplies impact on the lacustrine sedimentation, or the deciphering of the geological structure under the recent sediment cover. The first outcomes have been presented at the XIIth Congress of Carpathian-Balkan Geological Association, held in 1981 in Bucharest-Romania (Rădan, in Mihăilescu *et al*., 1983).

Underwater magnetometry recording in the Danube Delta (the end of the years 80s – „pioneering" times)

Between 1987-1989, the underwater magnetic investigations were extended in the fluvial domain, achieving a very long (about 130 km) magnetic profile from the Iron Gates up to Baziaș the entrance point of the Danube River in Romania. At that time, the recordings were made with difficulty, the magnetometry team led by Sorin working in a little boat towed with a rope of about 40-50 m by the tugboat "Stuful", turned into a research vessel; the underwater sensor was towed, in turn, from the small boat, with a 50-60 m cable, so that it could be kept as far as possible from the metal body of the tugboat. Pioneering times! The data obtained have, however, brought useful magnetic information, able to improve the knowledge of the "deep structure" in the water-covered area, especially given the crossing of the western end of the Southern Carpathians in the mentioned area, characterized by a complex geological structure.

After 1990, the activity focused exclusively on the study of the variations of the magnetic susceptibility (MS) values in the bottom sediments and in the cores, the measurements being later (1992) included in the monitoring program devoted to assess the Danube and Danube Delta environment quality. This program started in the Geological Institute of Romania, then taken over by GeoEcoMar (1994). Between 1995 and 2013, MS measurements of the bottom sediments in the northwestern Black Sea took place in the framework of several international expeditions (EROS 2000/1995, EROS 21/1997) and national expeditions (2010, 2013). The cooperation of the two institutes in this field has officially continued until 2008, thanks to two consecutive projects, led by Sorin (CERES Program – 2002-2004), and myself, respectively CEEX Program – 2005-2008), which have greatly contributed to the development of the field of environmental magnetism. After Sorin`s retirement, our collaboration in the magneto-susceptibility testing has been maintained, due to the mutual scientific interest, until 2012 for the Danube, and 2015, respectively, for the Danube Delta. This partnership, carried out over four decades, has led to the accumulation of a consistent database of several thousand of MS measurements, the writing over 90 articles and presentations at different scientific events, and the initiation of original research methodologies for the lacustrine environments in wetlands. Thus, a strong correlation between sediment granulometry and magnetic susceptibility was proved, and, for sediments showing similar grain size, a clear link between MS and the degree of heavy metal contamination of sediments could be made.

In the Danube Delta (September, 2013)

The introduction of a new method of lithological classification for the Danube Delta sediments, based on the participation of three major components - organic matter (TOM), carbonates (CAR) and minerogenic material (usually detrital, predominantly siliciclastic) (SIL), revealed a very strong posi-

tive correlation (usually r> 0.90) between the magnetic susceptibility (MS) and the siliciclastic material content (SIL).That makes MS a particularly valuable *proxy* parameter as *environmental and minerogenic fingerprinting tool*, given that the MS measurement is a faster and cheaper analysis. Based on the huge amount of data gathered, a first scale of magnetic susceptibility, applicable to lake sediments could be conceived (Rădan & Rădan, 2007 a). Dozens of diagrams, core profiles and distribution maps of the three lithological parameters and MS were drawn, showing the similarity of the models obtained for the lakes of the Danube Delta, the main and the marginal lakes of the Razim-Sinoie Lagoon Complex, as well as for the North-western area of the Black Sea. By the results obtained so far, the use of the magnetic susceptibility (MS) record as a *proxy* signature for the lithological composition of lake sediments remains one of the most interesting research tools developed by Sorin.

A confirmation of these results came from the **AGU Fall Meeting**, held in San Francisco-USA (December, 2007). Sorin proposed a session entitled "*Enviromagnetic Fingerprints Recovered From Modern Sediments*", which was accepted and included in the Programme of the Section **"Geomagnetism and Paleomagnetism"**. He became the convenor and chairperson of this session, in which 5 invited lectures, 3 oral and 15 poster contributions were accepted, including his presentation on "*Modern Sediments as Enviromagnetic Archives. A Case Study: Danube Delta and Northwestern Black Sea*". It was a difficult endeavour to organize such an event, but his passionate work and determination brought him success.

Sorin was involved in several international projects (SEQS/INQUA, KAPG, Intergeotehnica, IGCP, CoMCoM, Peritethys, EROS-2000, EROS-21, BSRC-IOC/UNESCO, SCOPE 2002-2003), with contributions of rock-magnetism, palaeomagnetism, environmental magnetism, magnetic survey. Among other things, he had also successfully participated in several international meetings and expeditions for field works, in the framework of the "Commission of the Academies of Sciences (of the former Socialist states) for Planetary Geophysics", carried out in various countries (Czechoslovakia, Poland, USSR/Russia, USSR/Uzbekistan, German Democratic Republic, Romania).

Another aspect worth remembering is his participation as a co-author in the elaboration of the Reports of the Romanian Section of the International Association of Geomagnetism and Aeronomy (IAGA)/Working Groups I.3 ("Palaeomagnetism") and I.4 ("Rock Magnetism"), included in seven "National Reports" sent to the General Assemblies of the International Union of Geodesy and Geophysics (Germany, 1983; Canada, 1987; Austria, 1991; Great Britain, 1999; Japan, 2003; Italy, 2007; Australia, 2011).

Sorin was actively involved in many scientific meetings. Some series of conferences have been very close to him through the themes approached, and he managed to became almost a regular participant. Such a cycle is the so-called „Castle Meetings" with the theme "New Trends in Geomagnetism - Palaeo, Rock and Environmental Magnetism", organized since 1988 every two years, traditionally in various castles from the old Czechoslovakia; in the last years, the tradition was extended to other countries (Portugal-2016, Poland-2018). As a sign of appreciation for his activity, his attendance to some of these meetings was sponsored by the organisers and, in 2006, he was also conferred the Medal "10 Castle Meetings - New Trends in Geomagnetism", by the Geophysical Institute of the Academy of Sciences of the Czech Republic from Prague and the Geophysical Institute of the Slovak Academy of Sciences from Bratislava, at Valtice Castle (Czech Republic).

The second series of conferences, that he attended almost every year, were the annual International Symposia organized by the Danube Delta National Institute dedicated to „Deltas and Wetlands" (26 editions so far). Many papers on the Danube Delta sediments have been presented here for the first time. In the last 8 years, he usually participated on his own, although sometimes the organizers offered him sponsorship and even assigned him a *„Diploma for the most active participation"* (May, 2017).

Speaking about other diplomas received on anniversary occasions, we might mention the Jubilee Diploma "*70 years of Romanian Geophysical Prospecting*", awarded by the Romanian Academy – the Romanian National Committee of Geodesy and Geophysics and the Romanian Society of Geophysics, in 1995 and the Jubilee Medal "*The 50th Anniversary of the Surlari Geophysical Observatory*", awarded by the Geological Institute of Romania, in 1993.

A particular area of his activity was devoted to the young generation. He offered help for younger colleagues in their work, and he also liked to share his experience with geological and geophysical students in numerous university conferences. After 2000, he had a first series of invited lectures at several Seminars of Applied Geophysics organized for the PhD students in the framework of the Department of Geophysics, University of Bucharest, then later, between 2012-2018, he was an invited lecturer at the Faculty of Geology and Geophysics (University of Bucharest), for short (intensive) courses on Rock Magnetism, Palaeomagnetism and Environmental Magnetism (within the current course of Magnetic Prospecting and Magnetics). Moreover, he offered scientific consulting related to rock magnetism, palaeomagnetism, enviromagnetism, magnetic survey, for Romanian or foreign students or PhD students, who were carrying out licence works or PhD or postdoctoral theses.

He was a member of the Editorial Board of the "Technical and Scientific Information and Documentation Newsletter", published by the Institute of Geology and Geophysics (1982-1987), and, from 2009, a very active and deeply involved member of the Editorial Board of the GeoEcoMarina journal, edited by GeoEcoMar. In 2013-2015 he was one of the Guest

Editors of a Special Issue of *Quaternary International* journal (vol. 357/2015, 344 p.)

During his long research activity, Sorin was a member of several professional associations: Romanian Society of Geophysics, Geological Society of Romania, European Geosciences Union, American Geophysical Union, Society of Exploration Geophysicists and Romanian Committee for the International Association of Geomagnetism and Aeronomy.

Among other skills, Sorin showed much talent for photography and special artistic abilities, some of which were manifested in carrying out, in a personal manner, quite complex (but suggestive) diagrams, charts and graphs, full of colour, which are enclosed in his scientific reports, papers, PPT presentations and posters.

At the end of his life, Sorin-Corneliu Rădan presents himself as the author and co-author of more than 250 papers, notes, reviews, contributions to books, special volumes, monographs, field guidebooks, atlasses, geophysical and geological maps, and other type of presentations at scientific conferences or workshops.

Many people are happy when retiring, some even want to take an early retirement. To him, this was a troubling perspective. A beautiful life means doing the things one likes. Or, for a loner as him, what may be more beautiful to do than dealing with the things that have always given him satisfaction, analyzing and deciphering the Earth`s messages transmitted by all kinds of measurable signals and parameters.

Sorin was a special man, usually selective in dealing with people, but very devoted to family values and true friends. He was particularly fair and honest with everyone, persevering, tenacious, with the mind open to new, hard-working, devoted and loyal to the causes he embraced. He was an analytical, meticulous, even perfectionist worker; he had a very fine sense of detail and a special aesthetic sense.

Sorin was a passionate researcher who has generously given all his energy to his work. He had a young spirit and was an idealist to the end of his life, ready to fight for the ideas he believed in. I do not know if he ever thought about what he would leave behind, and I think we still have a long way to discover all his legacy.

Sorin was equally dedicated to the family he was deeply attached to. Even if he did not have children of his own, he was a loving uncle to a niece who misses him. We all miss him, beyond words.

May God rest his soul in peace !

Silviu RĂDAN

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SELECTED PUBLICATIONS

Papers, extended abstracts, notes and reviews Contributions to books, Geophysical – Geological field Guidebooks

Rădan, S.C. (1970). Harta reliefului fundamentului cristalin în Bazinul inferior al Streiului construită pe baza datelor gravimetrice, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică*, **8**, *2*, Bucureşti, p. 129-137.

Roşca, Vl., **Rădan, S.C.**, Rădan, S. (1973). Magnetizarea termoremanentă a unor argile neogene din Oltenia de NV, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică*, **11**, *2*, Bucureşti, p. 303-313.

Roth, M., **Rădan, S.C.** (1974). Asupra cercetării magnetometrice a unei separaţii magnetitifere în cristalinul de la Valea Putnei-Mestecăniş, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică,* **12**, Bucureşti, p. 153-156.

Rădan, S.C., Rădan, M. (1979). Asupra proprietăţilor magnetice ale bauxitelor din Munţii Pădurea Craiului, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică*, **17**, *2*, Bucureşti, p. 203-212.

Rădan, S., **Rădan, S.C.** (1980 a). An application of the magnetic susceptibility in Geology, *Rev. Roum. Géol. Géophys. Géogr. – Géophysique*, **24**, *2*, Bucarest, p. 269-275.

Rădan, S.C., Rădan, M. (1980 b). Variante metodologice petromagnetice cu aplicaţie la studiul susceptibilităţii magnetice a unor şisturi epimetamorfice din Munţii Poiana Ruscă (I). Modele de distribuţie verticală a susceptibilităţii, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică,* **18**, Bucureşti, p. 139-150.

Rădan, S.C. (1981a). Cercetări paleomagnetice, *Bul. Inf. Ştiinţ. Tehn.*, **I**, *1*, Inst. Geol. Geofiz., Bucureşti, p. 8-9.

Rădan, S.C. (1981b). Cercetări magnetometrice şi petromagnetice în domeniul lacustru, *Bul. Inf. Ştiinţ. Tehn.*, **I**, *1*, Inst. Geol. Geofiz., Bucureşti, p. 9-11.

Rădan, S.C., Rădan, M. (1981). Variante metodologice petromagnetice cu aplicaţie la studiul susceptibilităţii magnetice a unor şisturi epimetamorfice din Munţii Poiana Ruscă (II). Modele de distribuţie areală şi intrinsecă a susceptibilităţii, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică,* **19**, Bucureşti, p. 109-121.

Ghenea, C., Bandrabur, T., Mihăilă, N., Rădulescu, C., Samson, P., **Rădan, S.C.** (1981). *Pliocene and Pleistocene deposits in the Braşov Depression, Guidebook for the INQUA field excursion (1st - 8th June, 1981*), Inst. Geol. Geofiz., Bucharest, 57p.

Rădan, S.C. (1983). Posibilităţi de apreciere cantitativă a stabilităţii remanenţei rocilor, *St. Cerc. Geol. Geofiz. Geogr. – Geofizică,* **21**, Bucureşti, p. 74-81.

Rădan, S.C., Rădan, S., Rădan, M. (1983). Palaeomagnetism of the bauxites of the Pădurea Craiului Mountains and its palaeotectonic implications (abstract), *Rev. Roum. Géol. Géophys. Géogr. – Géophysique,* **27**, Bucarest, p. 62-63.

Airinei, Şt., Stoenescu, Sc., Velcescu, G., Romanescu, Dr., Visarion, M., **Rădan, S.C.**, Roth, M., Beşuţiu, L., Beşuţiu, G. (1983). Carte de l'anomalie magnétique ΔZ pour le territoire de la Roumanie*, An. Inst. Geol. Geofiz.,* **LXIII**, Bucureşti, p. 7-13.

Ghiţulescu, T.P., Ghiţulescu, I., Pitulea, G., Georgescu, A., Neştianu, A., Rădan, M., **Rădan, S.C.**, Romanescu, Dr. (1983). Structogenetic and petromagnetic methodological studies concerning the Neogene magmatites in the Metaliferi Mountains (Transylvania), *An. Inst. Geol. Geofiz.*, **LXI**, Bucureşti, p. 189-198.

Mihăilescu, N., Rădan, S., Artin, L., **Rădan, S.C.**, Rădan, M., Vanghelie, I. (1983). Modern sedimentation in the Razelm-Sinoe lacustrine complex, *An. Inst. Geol. Geofiz.*, **LXII**, Bucureşti, p. 299-304.

Rădan, S.C., Ghenea, C., Rădan, M. (1984). *Quaternary deposits in South Doubrudja – Geological and palaeomagnetic characteristics,* Guidebook for the KAPG field trip (Sept. 24 - Oct. 4, 1984), Inst. Geol. Geophys., Bucharest, 18p.

Airinei, Şt., Stoenescu, Sc., Velcescu, G., Romanescu, D., Visarion, M., Rădan, S.C., Roth, M., Beşuţiu, L., Beşuţiu, G. (1985). Distribuţia anomaliilor magnetice ΔZa pe teritoriul României, *St. Geol. Geofiz. Geogr. - Geofizică*, **23**, Bucureşti, p. 12-19.

Andreescu, I., **Rădan, S.C.**, Rădan, M. (1986). Magnetostratigraphy of the Dacian - Romanian deposits of Lupoaia zone (North-Western Oltenia*), D. S. Inst. Geol. Geofiz.,* **70-71/4** (1983-1984), Bucureşti, p. 219-226.

Andreescu, I., **Rădan, S.C.**, Rădan, M. (1987). Magnetobiostratigraphy of Upper Neogene and Quaternary deposits from Romania, *Proceed. VIIIth R.C.M.N.S. Congr., Ann. Inst. Geol. Publ. Hung.*, **LXX**, Budapestini, p. 113-118.

Rădan, S.C., Rădan, M. (1990). Some data concerning anisotropy of magnetic susceptibility of the palaeomagnetically investigated loesses, p. 19-21, *in* F. Wiegank (*Ed.*). "*Geomagnetic Field in Quaternary", Veröffentlichung des Zentralinstitut für Physik der Erde,* **62**, Potsdam, Germany, 182p.

Rădan, S.C., Ghenea, C., Rădan, M. (1990). Palaeomagnetic investigation of Pleistocene formations in Romania and their magnetostratigraphic significance, p. 115-120, *in* F. Wiegank (*Ed.*). "*Geomagnetic Field in Quaternary", Veröffentlichung des Zentralinstitut für Physik der Erde,* **62**, Potsdam, Germany, 182p.

Bulgăreanu, V-A.C., Călinescu, E., Cehlarov, A., Cuşmirenco, G., Enache, G., Opriş, E., Prodănescu, I., **Rădan, S.C.**, Urcan, T. (1990). Limnogeology and peloidogenesis evolution of « chott » type lake Sărătura 1 - Murighiol (Independenţa village, Tulcea county, Romania), *Rev. Roum. Géol. Géophys. Géogr. – Géologie*, **34**, Bucarest, p. 83-94.

Ghenea, C., **Rădan, S.C.** (1993). New data on the age of the loess in Dobrogea, *Rom. J. Stratigr.*, **75**, Bucureşti, p. 133-137.

Oaie, G., Szobotka, Şt., Secrieru, D., Rădan, M., Rădan, S., **Rădan, S.C.** (1994). Monitoring geoecologic în cadrul macrosistemului Dunăre-Delta Dunării prin metode geologice, geochimice şi geofizice, *Analele ştiinţ. Inst. « Delta Dunării »*, **III/2**, Tulcea, p. 335-346.

Enciu, P., **Rădan, S.C.**, Stoian, L., Hadnagy, A., Rădan, M., Enciu, M. (1995). The evolution of the climate during Pliocene - Lower Pleistocene in the South of the Dacic Basin, *Xth Congr. Reg. Comm. Mediterr. Neogene Strat. (R.C.M.N.S)*, Bucharest, 4 - 9 Sept., 1995*, Rom. J. Strat.*, **76**, *Suppl.7*, p. 67-69.

Rădan, S.C., Rădan, M., Rădan, S., Mihăilescu, N. (1995). Magnetism ambiental în lacurile satelite ale complexului lagunar Razelm-Sinoe: L. Histria şi L. Nuntaşi, *Analele ştiinţ. Inst. Cerc. Proiect.* «*Delta Dunării*»*,* **IV/2**, Tulcea, p. 29-34.

Szobotka, Şt., Oaie, G., Craiu, C., Mihăilă, E., Rădan, S., Rădan, M., **Rădan, S.C.** (1995). Noi date obţinute prin metode geologice, geofizice şi geochimice integrate în monitoringul geoecologic aplicat în sistemul Dunăre - Delta Dunării, *Analele ştiinţ. Inst. Cerc. Proiect.* «*Delta Dunări*»*,* **IV/2**, Tulcea, p. 61-72.

Rădan, S.C., Rădan, M. (1996 a). Magnetostratigraphy as a technique of nomination and correlation of coal beds; two examples from western Dacic Basin (Romania), *Geologica Carpathica*, **47**, *3*, Slovak Acad. Press Ltd., Bratislava, p. 174-176.

Rădan, S.C., Rădan, M. (1996 b). Paleomagnetismul şi rock-magnetismul formaţiunilor purtătoare de cărbuni: aplicaţii şi implicaţii; Palaeomagnetism and rock magnetism of coal bearing formations: applications and implications*, An. Inst. Geol. al României,* **69***, Partea I*, Bucureşti, p. 272-276.

Rădan, S.C., Rădan, M., Rădan, S. (1996 a). Monitoring prin susceptibilimetrie magnetică (faza 1995) în sistemul Dunăre - Delta Dunării; semnificaţii geoecologice. 1 – Delta Dunării şi Complexul lacustru Razelm - Sinoe*, Analele ştiinţ. Inst. Cerc. Poiect.* « *Delta Dunării* »*,* **V**, Tulcea, p. 305-317.

Rădan, M., **Rădan, S.C.**, Rădan, S., Szobotka, Şt., Oaie, G. (1996 b). Monitoring prin susceptibilimetrie magnetică (faza 1995) în sistemul Dunăre - Delta Dunării; semnificaţii geoecologice. 2 - Dunărea*, Analele ştiinţ. Inst. Cerc. Proiect*. «*Delta Dunării*», **V**, Tulcea, p. 89-104.

Rădan, S.C., Rădan, M., Rădan, S., Andreescu, I., Vanghelie, I. (1996 c). Studiul magnetostratigrafic şi mineralogic al formaţiunilor dacian - romaniene din zona Mehedinţi, în vederea sinonimizării stratelor de lignit cu cele din sectorul Motru; Magnetostratigraphic and mineralogical study of Dacian - Romanian formations from Mehedinţi area: towards the synonymous nomination of lignite beds related to the Motru zone, *An. Inst. Geol. al României,* **69***, Partea I,* Bucureşti, p. 324-331.

Rădan, S.C., Rădan, M., Rădan, S., Mihăilescu, N. (1996 d). Magnetic susceptibility monitoring - recorder of environmental changes in Danube Delta, *Geologica Carpathica,* **47**, *3*, Slovak Acad. Press Ltd., Bratislava, p. 190-191.

Enciu, P., **Rădan, S.C.**, Hadnagy, A., Rădan, M., Enciu, M. (1996). Rezultate ale cercetării carotelor forajelor de prospecţiune hidrogeologică din Bazinul Dacic; Results of the investigations of the cores from the hydrogeological prospection boreholes in the Dacic Basin, *An. Inst. Geol. al României,* **69**, *Partea I,* Bucureşti, p. 32-36.

Rădan, S., Strechie, C., Ganciu, A., Ruzsa, G., **Rădan, S.C.**, Rădan, M. (1997). EROS - 2000 Danube Programme: State of ecosystems within the Danube Delta in 1995, in "*Fluvial-Marine Interactions*", Proceed. Internat. Workshop, October 1 - 7, 1996, Malnaş, *Geo-Eco-Marina,* **2**, Bucureşti - Constanţa, p. 163-177.

Rădan, S.C., Rădan, M., Rădan, S., Ganciu, A. (1997). Caracterizarea magnetosusceptibilimetrică a sedimentelor lacustre din Delta Dunării – monitoring 1996; semnificaţii ambientale confirmate*, Analele ştiinţ. Inst. Cerc. Proiect* « *Delta Dunării* »*,* Tulcea, **VI/2,** p. 479-495.

Rădan, S.C., Rădan, M. (1998 a). Studiul structurii câmpului geomagnetic în Terțiar, în contextul elaborării scărilor magnetostratigrafice. I - Pliocenul; Study of the geomagnetic field structure in Tertiary in the context of magnetostratigraphic scale elaboration. I - The Pliocene, *An. Inst. Geol. al României,* **70**, p. 215-231.

Rădan, S.C., Rădan, M. (1998 b). Rock magnetism and palaeomagnetism of porcelanites/clinkers from the Western Dacic Basin (Romania), *Geologica Carpathica,* **49**, *3,* Slovak Acad. Press Ltd., Bratislava, p. 209-211.

Rădan, S.C., Rădan, S., Rădan, M., Ganciu, A. (1998 a). Environmental magnetism in the North-western Black Sea; new results, *Geo-Eco-Marina,* **3**, Bucureşti - Constanța, p. 149-152.

Rădan, S.C., Rădan, M., Rădan, S., Ganciu, A., Oaie, Gh., Szobotka, Şt. (1998 b). Magnetic susceptibility monitoring in the Danube River - Danube Delta - western Black Sea system; environmental significances, *Geologica Carpathica*, **49**, *3,* Slovak Acad. Press Ltd., Bratislava, p. 239-241.

Rădan, S.C., Rădan, S., Rădan, M. (1999). Environmental magnetic signatures recovered from lake sediments in the Danube Delta (Romania), *Geo-Eco-Marina,* **4**, National Inst. Mar. Geol. Geo-ecol., Bucureşti - Constanța, p. 43-48.

Rădan, S.C. (2000). Magnetostratigraphic constraints on the coal bed codification; errors found, *Proceed. Rom. Acad., Series B,* **2**, *3,* Ed. Acad. Române, Bucureşti, p. 239-243.

Rădan, S.C., Rădan, M. (2000). Studiul structurii câmpului geomagnetic în Terțiar în contextul elaborării scărilor magnetostratigrafice. II - Pliocenul şi Miocenul Superior. Study of the geomagnetic field structure in Tertiary in the context of magnetostratigraphic scale elaboration. II - The Pliocene and Upper Miocene, *An. Inst. Geol. al României,* **72**, *Partea I*, Bucureşti, p. 223-231.

Rădan, S.C., Rădan, M., Rădan, S. (2000 a). Palaeo, Rock, Magnetic and Mineralogical characteristics of baked clays associated with burnt coal seams in the Dacic Basin (Romania), *Geologica Carpathica,* **51**, *3,* Slovak Acad. Press Ltd., Bratislava, p. 181-182.

Rădan, S.C., Rădan, S., Rădan, M. (2000 b). Studiul integrat rock-magnetic şi termo-mineralogic al unor porțelanite din zona Jilț (Bazinul Dacic), *St. Cerc. Geol*., **45**, Ed. Acad. Române, Bucureşti, p. 71-94.

Rădan, S.C., Rădan, M., Rădan, S., Ganciu, A. (2000 c). Magnetic susceptibility characterization of sedimentary environments within the Danube Delta – Black Sea system, *Geologica Carpathica,* **51**, *3,* Slovak Acad. Press Ltd., Bratislava, p. 201-202.

Rădan, S.C., Rădan, M. (2001). Study of geomagnetic field in Tertiary in the context of magnetostratigraphic scale elaboration. III – The Miocene, *Proceed. Rom. Acad., Series B,* **3**, *2*, Ed. Acad. Române, Bucureşti, p. 159-165.

Rădan, S.C., Rădan, S., Rădan, M. (2001). Studiul integrat rock-magnetic, termo-mineralogic şi geochimic al unor porțelanite din zona Lupoaia (Bazinul Dacic), *St. Cerc. Geol*., **46**, Ed. Acad. Române, p. 111-141.

Rădan, S.C. (2002). The Earth's magnetic palaeofield in Tertiary, in magnetostratigraphic context.; a brief review of two geomagnetic polarity records recovered from Neogene sedimentary sequences, *Proceed. Rom. Acad*., *Series B*, **4**, 1, Ed. Acad. Române, Bucureşti, p. 33-39.

Rădan, S.C. (2003). Changes induced by temperature in the magnetic recording medium in areas with coal deposits; support from porcelanites, *Proceed. Rom. Acad*., *Series B*, **5**, 1-2, Ed. Acad. Române, Bucureşti, p. 51-59.

Rădan, S.C., Rădan, S. (2004 a). Magnetic susceptibility identification of environmental impact of the anthropogenic activities in aquatic ecosystems. A case study in the Danube Delta (Romania), *Contributions to Geophysics and Geodesy*, **34**, *Special Issue*, Geophys. Inst. Slovak Acad. Sci., Bratislava, Slovakia, p. 114-116.

Rădan, S.C., Rădan, S. (2004 b). State of the sedimentary environments of the Matița – Merhei Depression (Danube Delta, Romania) as inferred from magnetic susceptibility data, *Proceed. Rom. Acad*., *Series B*, 2004, **6**, *3*, Ed. Acad. Române, Bucureşti, p. 171-179.

Rădan, S.C., Rădan, S., Oaie, Gh., Szobotka, Şt. (2004). Magnetic suscepibility as a sensitive proxy parameter for differentiating deltaic (lacustrine and fluvial) sedimentary environments; inferences from the Danube Delta (Romania), *Contributions to Geophysics and Geodesy*, **34**, *Special Issue*, Geophys. Inst. Slovak Acad. Sci., Bratislava, Slovakia, p. 117-119.

Rădan, S.C., Rădan, S. (2004 - 2005). Caracterizarea magneto-susceptibilimetrică şi geochimică a ambianțelor sedimentare din ecosistemele lacustre ale Depresiunii Matița – Merhei (Delta Dunării, România); semnificații geoecologice, *Studii şi Cercetări de Geologie*, **49**-**50**, Ed. Academiei Române, Bucureşti, p. 99-139.

Rădan, S.C., Rădan, S. (2006 a). 30 years of magnetic susceptibility measurements on the Danube Delta lake sediments (Romania, 1976 - 2006). Sedimentologic applications to Environmental Magnetism, *Travaux Géophysiques*, **XXXVIII**, 2006, ISSN 0231-5548, Geophysical Institute, Academy of Sciences of the Czech Republic, Prague, p. 94-95.

Rădan, S.C., Rădan, S. (2006 b). A magnetic susceptibility scale with a lithological support originated in the lake sediments from the Danube Delta and the Razim – Sinoie lagoonal Complex (Romania). An environmental and geoecological approach, *Travaux Géophysiques*, **XXXVIII**, 2006, ISSN 0231-5548, Geophysical Institute, Academy of Sciences of the Czech Republic, Prague, p. 96-97.

Rădan, S.C., Rădan, S. (2007 a). A magnetic susceptibility scale for lake sediments; inferences from the Danube Delta and the Razim – Sinoie lagoonal Complex (Romania), *Geo-Eco-Marina*, **13**, Bucureşti – Constanța, p. 61-74.

Rădan, S.C., Rădan, S. (2007 b). Modern Sediments as Enviromagnetic Archives. A Case Study: Danube Delta and Northwestern Black Sea, *EOS Transactions, American Geophysical Union*, **88** (*52*), *Fall Meet. Suppl*., San Francisco, USA, *Abstract GP53B-1220*.

Dimitriu, R.G., Oaie, G., Gomoiu, M.T., Begun, T., Szobotka, Şt., **Rădan, S.C.**, Fulga, C. (2008 a). O caracterizare interdisciplinară a stării geoecologice a complexului lagunar Razelm - Sinoie la începutul secolului XXI, *Geo-Eco-Marina*, **14**, *Supliment nr.1*, Bucureşti - Constanța, p. 69-74.

Dimitriu, R.G., Oaie, G., Szobotka, Şt., Sava, C., **Rădan, S.C.**, Fulga, C., Opreanu, G. (2008 b). Cartarea hidro-geomorfologică a zonei litorale Sfântu Gheorghe - Vadu. Prime rezultate ale cercetării inte-

grate geofizice-geoecologice (2005 - 2006), *Geo-Eco-Marina*, **14**, *Supliment nr.1*, Bucureşti - Constanța, p. 75-80.

Rădan, S.C. (2008). Problema directă şi problema inversă în Petromagnetologie şi Paleomagnetologie; o discuție, cu exemplficări în Geofizică, Geologie şi Geoecologie, *Geo-Eco-Marina*, **14**, *Suplimentnr.1*, Bucureşti – Constanța, p.197-211.

Rădan, S.C., Rădan S. (2008). Magnetic properties of the Pliocene sedimentary sequences in the western Dacic Basin (Romania): A case study from the lignite – clay doublets, *Contributions to Geophysics and Geodesy*, **38**, *Special Issue*, Geophys. Inst. Slovak Acad. Sci., Bratislava, Slovakia, p. 111-115.

Rădan, S.C., Rădan S., Cazacu, C., Milu, C. (2008). Magnetic susceptibility and lithological characterisation of the lake sediments from the southeastern Romania wetlands; environmental significances, *Contributions to Geophysics and Geodesy*, **38**, *Special Issue*, Geophys. Inst. Slovak Acad. Sci., Bratislava, Slovakia, p. 107-110.

Rădan, S., Pavel, A., Bălan, S., Opreanu, P., Jugaru, L., **Rădan, S.C.**, Milu, C. (2008). Emisii naturale de gaze cu efect de seră în zonele umede din România, cu privire specială asupra Deltei Dunării şi Zonei litorale a Mării Negre (*GASERO*), *Programul de cercetare de excelență 2005 - 2008, MENER 2008 – Mediu*, Universitatea Politehnica Bucureşti, Facultatea de Energetică, Volum lucrări, p. 743-757.

Rădan, S.C., Rădan, S. (2009). Integrated magnetic susceptibility and lithological studies on lacustrine recent sediments from the Danube Delta, *Geo-Eco-Marina*, **15**, Bucharest, p. 177-197.

Rădan, S.C. (2009). Chapter 1.2.2: "Toward a reliable chronostratigraphic and geochronologic framework of the Dacian Basin", p. 23-27, in: D. C. Jipa and C. Olariu – "Dacian Basin. Depositional Architecture and Sedimentary History of a Paratethys Sea", Geo-Eco-Marina, Special Publication no. **3**, GeoEcoMar, Bucharest, 264p.

Rădan, S.C., Rădan, S. (2010 a). The use of the magnetic susceptibility to study hydrosedimentary environments and processes in Danube Delta, *Geo-Eco-Marina*, **16**, Bucureşti - Constanța, p. 37-46.

Rădan, S.C., Rădan, S. (2010 b). Ecohydrological applications in southeastern Romania wetlands based on a magneto-lithological tool, *Geo-Eco-Marina*, **16**, Bucureşti - Constanța, p. 47-66.

Rădan, S.C., Rădan, S. (2010 c). Lake sediments fingerprinting in the Danube Delta, using composite magneto-lithological signatures; an environmental approach, *Travaux Géophysiques*, **XXXIX**, Abstracts of the 12th "Castle Meeting" « *New Trends in Geomagnetism. Palaeo, Rock and Environmental Magnetism* », Castle of Nové Hrady, Czech Republic, August 29 - September 4, 2010, p. 68-69.

Rădan, S.C., Rădan, S. (2011 a). How coal fires affect the clays: An interdisciplinary approach, p. 148-152, *in* Gonçalves, A.B., and Vieira, A. (*Eds*.), *Fire Effects on Soil Properties, Proceedings of the 3rd International Meeting of Fire Effects on Soil Properties*, Guimarães, Portugal, 15 - 19 March, 2011. Edited by *Núcleo de Investigação em Geografia e Planeamento* (Universidade do Minho) and *Centro de Estudos de Geografia e Ordenamento do Território* (Universidades de Coimbra, Porto e Minho), ISBN 978-989-97214-0-1, 280 p.

Rădan, S.C., Rădan, S. (2011 b). Coal Palaeofires in the Western Dacic Basin: Geophysical, Mineralogical and Geochemical Signatures Recovered from Porcelanites and Clinkers; a Case History, p. 266-270, *in* Gonçalves, A.B. and Vieira, A. (*Eds*.), *Fire Effects on Soil Properties, Proceedings of the 3rd International Meeting of Fire Efects on Soil Properties*, Guimarães, Portugal, 15 - 19 March, 2011. Edited by *Núcleo de Investigação em Geografia e Planeamento* (Universidade do Minho) and *Centro de Estudos de Geografia e Ordenamento do Território* (Universidades de Coimbra, Porto e Minho), ISBN 978-989-97214-0-1, 280 p.

Rădan, S.C., Rădan, S. (2011 c). Recent sediments as enviromagnetic archives. A brief overview, *Geo-Eco-Marina*, **17**, Bucureşti - Constanța, p. 103-122).

Rădan, S.C., Rădan, S., Vărzaru, C. (2011). Magnetic Susceptibility Calibration and Lithological Characterisation of the Lake Sediments from the Black Sea Littoral Zone (Romania): Natural and Anthropogenic Inferences, *3rd International Symposium on the Geology of the Black Sea Region*, Bucharest, 1 - 10 October, 2011, *ABSTRACTS*, *Supplement to Geo-Eco-Marina*, **17**, 2011, p. 140-143.

Rădan, S.C. (2012). Towards a synopsis of dating the loess from the Romanian Plain and Dobrogea: Authors and methods through time, *Geo-Eco-Marina*, **18**, Bucureşti -Constanța, Romania, p. 153-172.

Rădan, S.C., Rădan, S. (2012). Magnetic susceptibility as a versatile investigation tool in different geocontexts: from Palaeozoic rocks to Recent sediments. An overview of three case studies, *Berichte des Institutes für Erdwissenschaften, Karl-Franzens-Universität Graz*, Band **17**, ISSN 1608-8166, IGCP 580 "*Magnetic Susceptibility and Gamma-Ray Spectrometry through time*", Graz, 24th – 30th June 2012, *Abstract Volume*, Kido, E., Suttner, T.J., Piller, W.E., Da Silva, A.C., Corradini, C. and Simonetto, L. (*Eds*.), Graz, Austria, p. 40-42.

Rădan, S.C., Rădan, S., Catianis, I. (2012). Magnetic susceptibility distribution in lake sediments inferred from short cores collected in the Danube Delta and Razim - Sinoie Lagoonal Complex. I. Results from deltaic lakes, p. 103-105, *In* Túnyi I., Petrovsky, E., Šoltis, T. (*Eds*.), „*Paleo, Rock and Environmental Magnetism*", Book of Abstracts, "*13th Castle Meeting*", June 17th – 23rd, 2012, Zvolen, Slovak Republic, *Contributions to Geophysics and Geodesy*, vol. **42**, *Special issue*, Geophys. Inst. Slovak Acad. Sci., Bratislava, Slovakia, 126p.

Rădan, S.C. (2013). Is the Romanian Loess Older than 0.8 Ma? A Dating Overview and an Up-To-Date Reply Based on Magnetic Multy-Proxy Signatures Correlated to the Geomagnetic Polarity and Marine Isotope Stage Time Scales, p. 31-32, *In*: Rădan, S., Rădan, S.C., Vasiliu, C. (*Eds*.) (2013) – *Correlations of Quaternary Fluvial, Eolian, Deltaic and Marine Sequences*, Book of Abstracts, 2013 Meeting of *INQUA* – Section on European Quaternary Stratigraphy (*SEQS*), 23 - 27th September 2013, Constanța (Romania), GeoEcoMar, Bucharest, ISBN 978-973-0-15477-1, 36p.

Rădan, S.C., Rădan, S. (2013). *Chapter* **17**: "Paleo-Coal Fires in the Western Dacic Basin, Romania", p. 338-349, *In*: Stracher, G.B., Prakash, A., and Sokol, E.V. (*Eds*.), *Coal and Peat Fires: A Global Perspective*, Volume **2**: *Photographs and Multimedia Tours*, Elsevier B.V., 554p.

Rădan, S.C., Rădan, S., Catianis, I. (2013) – The use of the magnetic susceptibility record as a proxy signature for the lithological composition of lake sediments: Evidences from Danube Delta short cores in the Meşteru – Fortuna Depression (Danube Delta), *Geo-Eco-Marina*, **19**, Bucureşti - Constanța, Romania, ISSN: 2248–2776, ISSN-L: 1224–6808, p. 77-105.

Rădan, S., Panin, N., Jipa, D., **Rădan, S.C.** (2013) – *Correlations of Quaternary Fluvial, Eolian, Deltaic and Marine Sequences*, Field Trip Guidebook, 2013 Meeting of INQUA – Section on European Quaternary Stratigraphy (*SEQS*), 23 - 27th September 2013, Constanța (Romania), GeoEcoMar, Bucharest, ISBN 978-973-0-15476-4, 59p.

Rădan, S.C. (2014 a) – Magnetism of Cretaceous Bauxites from Pădurea Craiului (Apuseni Mountains, Romania): Implications for Near-Surface Lens Exploration, 2014 *IGCP 596 & 580, Joint Meeting Mongolia*, Ulaanbaatar, 5 - 18th August, 2014, *In*: Kido, E., Waters, J.A., Ariunchimeg, Ya., Gonchigdori, S., Da Silva, A.C., Whalen, M., Suttner , T.J. & Königshof, P. (*Eds*.) (2014) – *Abstract Volume*, p. 41-42, Berichte des Institutes für Erdwissenschaften, Karl-Franzens-Universität Graz, Band **19**, ISSN 1608-8166, Graz, 65p.

Rădan, S.C. (2014 b) – A Magnetic Multi-proxy Approach of the Loess-Palaeosoil Sequences in Southern Romania, in a Chronostratigraphic - Palaeoenvironmental - Palaeoclimatic Context: An Overview and New Results, 2014 *IGCP 596 & 580, Joint Meeting Mongolia*, Ulaanbaatar, 5 - 18th August, 2014, *In*: Kido, E., Waters, J.A., Ariunchimeg, Ya., Gonchigdori, S., Da Silva, A.C., Whalen, M., Suttner , T.J. & Königshof, P. (*Eds*.) (2014) – *Abstract Volume*, p. 43-45, Berichte des Institutes für Erdwissenschaften, Karl-Franzens-Universität Graz, Band **19**, ISSN 1608-8166, Graz, 65p.

Rădan, S.C., Rădan, S. (2014) – The geomagnetic recording medium from western Dacic Basin (Romania) disturbed by coal palaeo-fires: Pleistocene porcellanites within Pliocene lignite - clay sequences; multi-proxy evidence, p.124-126, p.202 (Appendix 9/Fig. A10). *In*: A.V. Borodin, E.A. Markova, T.V. Strukova (*Eds*.) – *„THE QUATERNARY OF THE URALS: global trends and Pan-European Quaternary records"*, International conference, INQUA-SEQS 2014, Ekaterinburg, Russia, September 10 - 16, 2014, Ekaterinburg, UrFU, 2014, ISBN 978-5-321-02398-3, 228p.

Rădan, S.C., Rădan, S., Catianis, I. (2014 a) – Relationship between the magnetic susceptibility and lithological composition in sediment cores from lakes of Matița - Merhei Depression (Danube Delta, Romania): Towards a proxy method of sedimentological and environmental fingerprinting, *Geo-Eco-Marina*, **20**, Bucureşti - Constanța, ISSN: 2248–2776 ISSN-L: 1224–6808, p. 45-86.

Rădan, S.C., Rădan, S., Catianis, I., Scrieciu, A. (2014 b) – Towards assessing the potential for stratigraphic studies in the Danube Delta geo-environments by using magnetosusceptibility and lithological records retrieved from Recent sediments, p. 127-128, p. 203 (*Appendix* **10**/Fig. A11). *In*: A.V. Borodin, E.A. Markova, T.V. Strukova (Eds.) – *„THE QUATERNARY OF THE URALS: global trends and Pan-European Quaternary records"*, International conference INQUA-SEQS 2014 (Ekaterinburg, Russia, September 10 - 16, 2014), Ekaterinburg, UrFU, 2014, ISBN 978-5-321-02398-3, 228p.

Rădan S.C. (2015) – Imprints of the personality and writings of Professor Liviu Constantinescu in the theses of his PhD students: a tribute at his birth Centenary", *Geo-Eco-Marina*, **21**, Bucureşti - Constanța, p. 167-175.

Rădan, S., Panin, N., **Rădan S.C.** (2015) – SEQS 2013: Correlations of Quaternary fluvial, eolian, deltaic and marine sequences – Meeting and field trip in Romania, *Guest Editorial*, *Quaternary International*, Elsevier, **357**, p. 1-3.

Rădan, S.C., Rădan, S., Catianis, I., Grosu, D., Scrieciu, A., Pojar I. (2016 a) – An environmental magneto-lithogenetic study in the lakes of the Gorgova - Uzlina Depression (Danube Delta, Romania). I. Insights from sediment cores, *Geo-Eco-Marina*, **22**, Bucureşti - Constanța, p. 51-74.

Rădan, S.C., Rădan, S., Catianis, I., Grosu, D., Pojar I., Scrieciu, A. (2016 b) – An environmental magneto-lithogenetic study in the lakes of the Gorgova - Uzlina Depression (Danube Delta, Romania). II. Insights from surficial sediments, *Geo-Eco-Marina*, **22**, Bucureşti - Constanța, p. 75-107.

Rădan S.C., Rădan S., Catianis I., Grosu D., Pojar I., Scrieciu A. (2018). An integrated enviromagnetic and lithogenetic study in the lakes of the southern Danube Delta wing. Evidences from surficial sediments and short cores.*16th Castle Meeting New Trends on Paleo, Rock and Environmental Magnetism, Chęciny, Poland, 2018*, Published by the Institute of Geophysics, Polish Academy of Sciences – Geophysical Data Bases, Processing and Instrumentation vol. 423 (C-112), 2018, p. 121-122 DOI: 10.25171/InstGeoph_PAS_Publs-2018-062