Publications of the Institute of Geophysics, Polish Academy of Sciences
Geophysical Data Bases, Processing and Instrumentation
vol. 450 (M-38), 2024, pp. 29–34
DOI: 10.25171/InstGeoph_PAS_Publs-2024-005

Remembering Professor Aleksander Guterch

Jan PAJCHEL

Equinor, E&P Research Centre Bergen, Norway (retired)

✉ jpajchel@gmail.com

A beautifully colored map of Poland and Lithuania by De Vitt, cartographer of Karol Gustav, from 1655, bought in Oslo in 1976 by the advice of Prof. Aleksander Guterch, is a very pleasant memory of 13 years of our close cooperation.

I met Prof. Aleksander Guterch in the summer of 1969, after graduating from the Faculty of Mathematics and Physics at the University of Warsaw, with a master's degree in physics of the Earth. Following the advice of Prof. Tadeusz Olczak, I applied for a job at the laboratory of deep lithosphere research by means of deep seismic soundings (DSS) in the Department of Geophysics, Polish Academy of Sciences (PAS). Professor Aleksander Guterch (later AG) just completed his doctorate and was organizing a new laboratory, looking for appropriate candidates. I was hired by Prof. Roman Teisseyre (later RT), the Deputy Head of the Department. During the job interview, RT joked that my interest in mathematical methods in physics and understanding of geology will be beneficial for a new laboratory. RT referred to my mother's long-term cooperation with Prof. Jerzy Znosko at the Polish Geological Institute (PGI), an outstanding expert on Polish tectonics. He was an enthusiastic spokesman for DSS and, over time, had many publications with AG laboratory.

As a fresh graduate, I understood that I had to learn a lot, but I was met with support and friendliness from Prof. Aleksander Guterch and colleagues Edward Perchuć and Rufin Materzok, who helped me through this process. Engineer Jan Uchman – a precursor of crustal studies, also always found time to share his experience with me, despite not being a member of our lab.

These were the pioneering times of DSS. We were young and full of enthusiasm. Working on DSS profiles, in any weather and regardless of the terrain conditions, with registrations in the middle of the night, required mutual help and tolerance. I see this as, among other things, the source of our very good working atmosphere. AG was a demanding leader, with several years of experience, who knew how to criticize and praise. Sharing his passion for Polish and European history with us, AG relieved the tensions that were inevitable in the demanding research work.

Well-acquainted with the research capabilities of the Department of Geophysics, PAS, and cooperating institutions, AG shared his experience with me. This allowed me to quickly create a professional network. The most important cooperation was with the modeling group of the European Seismological Commission, headed by Prof. Slava Červený from Karlova University in Prague and Ivan Pšenčík from the Czech Academy of Sciences.

The DSS laboratory was located in the former telephone company's headquarters "Pasta", in the center of Warsaw. A prewar skyscraper with very high ceilings and small windows placed high above the floor. There we laid out seismograms on ping-pong tables, as they provided a lot of space to conduct interpretations. All of us welcomed every spring with joy because it gave us the opportunity to go with seismographs to the DSS profiles and see what was behind those "high walls".

AG did tremendous "promotional" work in institutions responsible for funding DSS, first and foremost the Polish Geological Institute (PGI). It was not an easy task to convince some of the geologists that the key to understanding shallow tectonics lies within deep crustal studies. When the first results of our work arrived, they became strong supporters of DSS.

Field campaigns along International Profile VII and VIII were a very busy time for the laboratory, but especially for AG. Coordination of shooting and registration programs required constant monitoring.

In contrast to continuous support from RT, our field campaigns were heavily criticized by the institute administration. They simply had too much work because of us.

Seismograms recorded often in very harsh conditions were of great value to us. AG attached great importance to the detailed identification of the wave field. It was verified by modeling and served as a basis for depth model construction. This method was a "guideline" in my future work with real seismic data, coming from research and prospect projects. Modeling was CPU demanding. AG warned me that CPU capacity will be a "never-ending story".

Results from DSS were published in *Acta Geophysica Polonica*, *Studia Geophysica et Geodaetica*, and presented at several conferences in Poland and abroad (e.g. Guterch et al. 1975, 1985). The achievements of AG and his group were recognized in 1976 with a National Award in Science of the first grade.

Working on international profiles was also full of surprises. After three years of joint registration and interpretation on profile VIII with geophysicists from the Ukrainian Academy of Sciences, our then good friends said: "it was high time to talk". "Sure thing", replied AG, "tomorrow we'll go to a restaurant". "No restaurant, we have to talk in the lab without witnesses". The next day, the two friends from Ukraine brought a couple of suitcases. After work, they opened it on the ping-pong table. Both were full, in one bread, canned meat, and pickles, in the other Ukrainian vodka. They wanted to honestly discuss the problem: who oppressed Ukraine more? Russian communists or Polish nobility? The discussion lasted from the afternoon until late night. AG showed great historical knowledge and political skills. I learned a lot myself. It took them three years to dare to do it.

Professor Roman Teisseyre signed in 1976 a long-term cooperation between the Institute of Geophysics, PAS, and Prof. Markvard A. Sellevoll (later MS) from the University of Bergen (UiB) in Norway dedicated to studies of the Earth's structure (Fig. 1). In the summer seasons of 1976 and 1978, AG's laboratory participated in collecting seismic and DSS data along three profiles in West Spitsbergen. This was a joint project between Norwegian, German, and American institutions granted by the NSF. This time the foreign contacts for Polish scientists were very limited. In the book "Jordskjelvstatjonen" (Sellevoll and Sundvor 2001), released for its anniversary, MS cited RT words about Bergen as "Det Polske pustehull mot Vest" (the Polish breathing window on the West). Profile locations were a scientific "compromise" of four nations and AG was the unquestionable project leader. Thanks to this project, I was able to go to the Bergen University for a research fellowship in 1979.

In 1976, AG was on board the shooting vessel R.V. H.U. Sverdrup during a profile when the vessel was hit by a heavy storm. It was a matter of honor for Norwegians to perform a shooting program in spite of the weather. The shooting program was terminated when dynamite

Fig. 1. Professors Roman Teisseyre, Jerzy Jankowski, and Aleksander Guterch in Bergen after signing the cooperation agreement with the University of Bergen.

exploded under the boat, damaging acquisition instruments on board. Norwegians were impressed by AG's calm behavior in this difficult situation, and the story became legendary in the Seismological Observatory of UiB.

The first Polish Geophysical Expedition to West Antarctica was organized by AG in 1979 (Guterch et al. 1984). The project was done in cooperation with the Argentine Antarctic Institute and happened half a year before the Falklands war. The tense situation demanded political skills from AG during meetings with Argentine and English marine forces active along the Antarctic peninsula. MS Kopernik visited the Arctowski Station in Admiralty Bay to get fresh water from a glacier. That day I sailed by a rubber boat to the Dufayel Island, known in the world for its rock crystals. After climbing the overhang, I found an eroded spherical geode. After returning to the Kopernik's deck with a fully loaded backpack, I was invited by AG to his cabin, to show my "trophies". Much to my surprise, AG selected the prettiest groups of crystals with a comment: "it will be a nice gift from the expedition". "This one for Prof. Kaczmarek, this one for Prof. Ney, this for..." and so long. When I was close to exploding from anger, AG handed me a radiogram from Poland with information that my son Piotr was born while I was on Dufayel Island.

On the way back to Poland, we visited the Argentine Antarctic Institute in Buenos Aires. During this stay, AG, thanks to his authority in the Polish Academy of Sciences, and in spite of possible consequences for him, prevented my sudden sending to Poland, demanded by persons having nothing in common with the scientific program. I'm still very grateful for AG's proof of trust in me.

SVEKA DSS profile was a result of a cooperation between IG PAS and the Institute of Seismology in Helsinki in 1981. Experience of AG in DSS was appreciated by Finish and Swedish partners (Luosto et al. 1982). The registration program ended in a very Finnish way, with a sauna party in the Finnish forest.

Thanks to the positive attitudes of AG and Prof. Roman Teisseyre, I was able to work as a research fellow at the UiB in the years 1982–1985, on leave from the IG PAS (Sellevoll et al. 1991).

Fig. 2. Professor Markvardt Sellevoll and Prof. Aleksander Guterch in our home in Bergen in 2009. They had very open and friendly relations.

Fig. 3. Professor Aleksander Guterch with his wife Barbara and my wife Bibianna in front of the former home of Edward Grieg, Bergen 2009.

After accepting the offer of 3 years research position at the UiB, I had to leave the IG PAS. But to be honest, thanks to both of them I was still working as a geophysicist. I later worked on direct and inverse problems of 2D and 3D seismic at the UiB and after that, in the Research Center at Norsk Hydro and Statoil for the next four decades.

In the following years, AG sent me handwritten letters informing on DSS progress, with copies of the publications for MS and me. The cooperation between AG and the Bergen University continued. AG visited Bergen several times, often accompanied by his wife Barbara (see Figs. 2 and 3), and we had the opportunity to have very nice meetings in our house or at MS's place. When I visited Warsaw several times with MS, AG always found time, in addition to meetings in the Institute, to invite us to his place for dinner prepared by Barbara. MS was delighted with the excellent food and the wonderful atmosphere of those evenings together. In 2006, MS asked me to accompany him on his "farewell" visit to Warsaw. He wanted to thank AG personally for many years of cooperation on Spitsbergen, for which he received the Copernicus Medal of the PAS. In the Institute MS met Prof. Kacper Rafał Rybicki and AG. The long-lasting cooperation between AG and MS has made MS an "ambassador" of the Polish arctic research in Norway.

AG was always positive about inviting presenters to the Institute whom I had the honor to work with. Dr. Tijmen Moser, a distinguished SEG lecturer, presented a short course about seismic diffractions in 2014. Professor Yngve Kristoffersen (see Fig. 4), a pioneer of collecting geophysical data from drifting ice with the help of a hovercraft in the Arctic, presented in 2019 the results from his expedition FRAM-2014/15, lasting 353 days that took him from the North Pole to Greenland.

We had regular contact with Olek and Barbara during our summer visits to Warsaw. In recent years, meetings were only possible at their home. Copies of the latest publications were waiting for me and after a delicious meal prepared by Barbara, Olek always found time to show me the

Fig. 4. Professor Aleksander Guterch and Prof. Yngve Kristoffersen after the presentation of FRAM 2014/15 expedition in the Institute in 2017.

latest maps purchased for his extraordinary collection. I had accompanied his great passion since 1969 when we met. During our business trips, Olek often opened a book and showed me the next map or saber he was going to buy, with fantastic historical documentation of the validity of his choice. If there was a historical museum in the city where the conference or work meeting was held, a visit to it in our free time was "obligatory", with Olek as a first-class guide. Thanks to him, I still buy books about old maps.

I'm deeply grateful to Prof. Aleksander Guterch for his support and friendliness during 13 years of joint research work and beyond. But no less, if not more, for the trust shown in me in 1980, when I needed it most, something I will never forget.

References

Guterch, A, R. Materzok, J. Pajchel, and E. Perchuć (1975), Crustal structure from deep seismic sounding along international profile VII on the territory of Poland. **In***: Proc. 14-th General Assembly of the European Seismological Commission in Trieste, Italy*, 281–293.

Guterch, A., R. Materzok, J. Pajchel, E. Perchuć, M. Grad, and S. Toporkiewicz (1984), Deep structure of the Earth's crust in the contact zone of the Paleozoic and Precambrian Platforms and the Carpatian Mts in Poland, *Acta Geophys. Pol*. **32**, 1, 25–41.

Guterch, A., M. Grad, T. Janik, E. Perchuć, and J. Pajchel (1985), Seismic studies of the crustal structure in West Antarctica 1979–1980 – Preliminary results, *Tectonophysics* **114**, 1–4, 411–429, DOI: 10.1016/0040-1951(85)90024-1.

Luosto, U., E. Lanne, H. Korhonnen, A. Guterch, M. Grad, J. Pajchel, E. Perchuć, and J. Yilinien (1982), Results of the deep seismic soundings of the earth crust on the profile SVEKA. **In:** *Proc. 18th General Assembly of the ESC, Leeds*.

Sellevoll, M., and A. Sundvor (2001), *Jordskjelvstatjonen Institutt for den Faste Jords Fysikk Gjennom ett Århundre*, Universitet i Bergen, Norge (in Norwegian).

Sellevoll, M.A., S.J. Duda, A. Guterch, J. Pajchel, E. Perchuć, and F. Thyssen (1991), Crustal structure in the Svalbard region from seismic measurements, *Tectonophysics* **189**, 1–4, 55–71, DOI: 10.1016/0040-1951(91)90487-D.

Received 7 June 2024
Accepted 5 July 2024