



Mehmet Ozan Sungurlu, the legendary Turkish petroleum geologist

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Abstract. On the occasion of 29 October 2023, the 100th anniversary of the Republic of Türkiye, I would like to pay tribute to M. Ozan Sungurlu (1939–1990), one of the most important non-academic competent Turkish field and petroleum geologists, and a pioneer of geological field observations throughout Türkiye. His scientific studies were published in numerous articles, many of which were co-authored by Turkish geologists. This article was written in memory and appreciation of M. Ozan Sungurlu, who made a great contribution to the field of geology in Türkiye and whose importance to Türkiye is undisputed. M. Ozan Sungurlu will be remembered as a valuable geoscientist whose passion and legacy we should share with future generations.

1 Introduction

The occasion of 29 October 2023, the 100th anniversary of the Republic of Türkiye, marks over 3 decades since the loss of M. Ozan Sungurlu (1939–1990), a famous representative of field geology. Attempting to illustrate his personality remains a difficult endeavor as many of his contemporaries are deceased and no direct reports are available. In this context, only a professional biographer who has access to most of the necessary documents, an often extremely rare situation, could achieve a satisfactory result. Now, I find myself in a position where I hope to understand and express some of the personality traits and work of one of the leading personalities of field geology in Türkiye. Thirty-three years after his death, this article is not intended to be an exhaustive analysis of his life and work but rather an overview of his career and contributions to the geological studies of Türkiye. The *Tribute to the Master* by Balkaş (2014) and the recently published book *My Brother Ozan Sungurlu* by (Dervişoğlu, 2022) both provide a wealth of detail on the subject (Fig. 1).

I would first like to pay tribute to M. Ozan Sungurlu, an outstanding field geologist whose name evokes deep gratitude in the hearts of his many friends and colleagues for the benefits he brought to both our country and the Turkish Petroleum Corporation (TPAO). The life and work of pioneer geologists such as M. Ozan Sungurlu represent a historical

and fundamental reference point that should be remembered by current and future generations of geoscientists. He passed down a rich legacy to all geologists and bountifully shared his all-inclusive experiences, affecting them with his endless wonder. He was also a great intergenerational geologist, a motivational friend and an excellent administrator.

M. Ozan Sungurlu was a Turkish geologist who was born in Gümüşhane on 20 October 1939. His father Süleyman Faik Sungurlu was a government officer, teacher and folk poet, while his mother Hatice Sungurlu was a housewife. Ozan was the youngest of seven children. After primary and secondary studies in Gümüşhane, the young man then followed the path of learning. Even though he was not one of the brightest students, he was good at the subjects that interested him (Dervişoğlu, 2022), and his teachers provided him with the valuable background knowledge that would form the basis of his later career. As is common among youths of his age, those who choose a profession that follows their passion usually become diligent and smart students. Ozan attended high school in Eskişehir in 1956 and later graduated from İstanbul University with a diploma in geology and received a Bachelor of Science degree in 1964. There is sadly no known record of his geology studies at the University of İstanbul. On 22 December 1965, he married his colleague Ms. Bilge from İstanbul University. Bilge earned a bachelor's degree

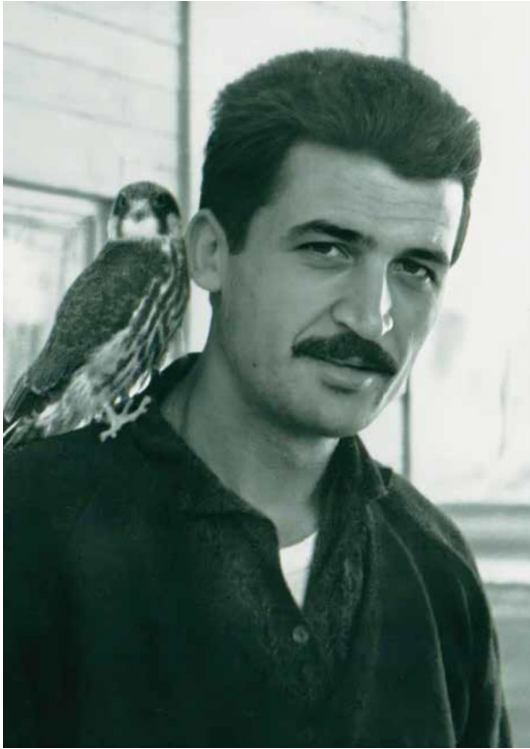


Figure 1. A photo from fieldwork in the 1970s in Adıyaman in southeastern Anatolia (from Dervişoğlu, 2022).

in geology from İstanbul University. She was a devoted wife and life partner who always had Ozan's best interests at heart (Dervişoğlu, 2022). They have two children, Faik Sungurlu and Ebru Sungurlu.

M. Ozan Sungurlu began his career as a field geologist at the Mineral Research and Exploration Institute (MTA) between 1964 and 1967 and attended the exploration group of the TPAO in 1969. His extremely valuable contributions to the exploration effort led to his appointment as a vice manager of the Exploration Group in 1980, manager of the Exploration Group in 1984, and Vice President of the TPAO in 1989. His dedicated thorough geological studies throughout his life rightly earned him a reputation as an exemplary geologist and manager. He was President of the Turkish Association of Petroleum Geologists from 1980 to 1981.

His interest was in integrated geological processes, where he became a researcher who used data and field relationships to challenge established dogmas for geological problems in Türkiye. His extraordinary interest in the fundamentals of geological thinking drove him to solve the complex regional geology of Türkiye, especially to events from the Paleozoic to the present. He continued to be professionally active and published on the structural geology of southeastern Türkiye and the regional geology of the Turkish part of the Tethyan region with colleagues. He also contributed importantly to the geological studies of both the TPAO and uni-

versities (e.g., mainly İstanbul Technical University and İstanbul University). M. Ozan Sungurlu's credibility as a person of wholeness allowed him to be a bridge between the TPAO and universities. In particular, in 1980–1990, released new fieldwork works to be produced in several studies and mentioned a new attribute of petroleum geology. For his colleagues and friends at İstanbul Technical University (İTÜ), Şengör et al. (1991), M. Ozan Sungurlu was "This extraordinary interest in earth sciences, combined with his superior intelligence and comprehension power, made him the greatest geologist in Türkiye has ever been". He earned the love and respect of all, not only through his achievements but also through his humble personality, as a sensitive, thoughtful and compassionate person, as a sincere and loyal friend, and for his love of humanity. Most importantly, he was a truly caring person. He dedicated his time, energy and skills to uphold the highest professional standards (Balkaş, 2014). His colleagues and friends found his sudden death unacceptable and were convinced that he would have made many more contributions to his country and his profession.

M. Ozan Sungurlu emphasized the great importance of careful surveys and thorough analyses and repeatedly called on geologists to carry out field studies, especially those who preceded the field, and to summarize all new data on the regional geology of petroleum areas in Türkiye (Balkaş, 2014). Even if he did not directly make the oil discovery, his colleagues in the exploration group made many discoveries under his guidance. However, it is worth mentioning that his friends were amazed at the increase and diversity of his geological activity, his amazing working ability and the abundance of his energy in the petroleum areas of Türkiye. He had a unique style. Apart from TPAO company reports, M. Ozan Sungurlu had few publications in the literature. However, he helped and mentored a number of his geology colleagues, including Doğan Perinçek, Yücel Yılmaz and Celal Şengör. He is the best person for understanding Türkiye's geology (Doğan Perinçek, personal communication, 2 February 2024). His slowness in composing articles is one of his weaknesses. M. Ozan Sungurlu is best described as someone who sees things others are blind to. The quote that best sums up Albert Szent-Györgyi is "Research is to see what everyone else has seen and to think what nobody else has thought!"

His studies interacted strongly with the best Turkish geologists, who are represented by men such as İhsan Ketin, A. M. C. Şengör, Yücel Yılmaz, Naci Görür, Fuat Şaroğlu and Necdet Özgül. He tirelessly spent many years engaged in field research, through which he gained extensive mapping experience and mastered the analysis and synthesis of geological information. In the field, Ozan liked to draw, but he did not like to write very much. His contributions to field geology were so great that, if he had been a painter, his name would be as famous as that of Picasso (Doğan Perinçek, personal communication, 2 February 2024). The enormous efforts he undertook and the skills to which he contributed

have borne fruit worthy of him. Based on his comprehensive knowledge of Türkiye's regional geology, M. Ozan Sungurlu, through his brilliant problem-solving skills in field geology, effectively predicted new petroleum prospects and later realized these predictions through exploration. TPAO Report No. 871, authored by Ozan and written in Turkish, is the most famous report of its period and the most cited. The research included a thorough geological analysis of the region to determine which area is most favorable for oil exploration and how deep the Mardin Group (source and reservoir) lies beneath the Koçali and Karadut complexes (allochthonous) and younger strata. The main focus of the research region is the structural belt of the foothills. Important tectonic events took place in this zone during the Upper Cretaceous. This geological study indicates that the foothill structure belt below the promontory is one possible oil target. Thanks to this report, the structural elements and stratigraphy of the Adıyaman and Diyarbakır territories were finally understood (Balkaş, 2014). He impressed everyone with his gentle charisma, the clarity of his presentation and the thoroughness of his argumentation. His audiences were captivated by his rich and vivid presentations of every geological problem he studied in different parts of Türkiye. He had a meticulous memory and could elaborate on the geology of all parts of Türkiye in fascinating detail. He emphasized the need to more intensively study the general geological problems of our country, including regional geology, stratigraphy, tectonics and especially paleogeography. He encouraged all academics to work intensively in field geology and to conduct extensive field studies as part of an integrated approach.

In 1991, M. Ozan Sungurlu received the TÜBİTAK Service Award from the Scientific and Technological Research Council of Türkiye (TÜBİTAK) for his work that significantly increased our country's oil and gas production through collaborative studies between the TPAO and universities.

As a sign of the TPAO's loyalty to M. Ozan Sungurlu, in 1991, a well was named M. Ozan Sungurlu-1 after the oil discovery in the Karadut-1 well in Adıyaman, southeastern Türkiye, and the field was subsequently developed and organized as the "Ozan Sungurlu oilfield". In 1991, his colleagues and the oil industry organized the Ozan Sungurlu Symposium Proceedings under the title Tectonics and Hydrocarbon Potential of Anatolia and Surrounding Regions and published scientific literature to honor his name and pass on his ideals to future generations. The valuable contributions of this symposium were summarized in a book that will be a lasting work for all geoscientists. In addition, a special issue of the Turkish Association of Petroleum Geologists (TAPG) Bulletin was published in 1992 in memory of M. Ozan Sungurlu (Balkaş, 2014).

The Ozan Sungurlu Foundation for Science, Education, and Aid was founded in 1991 by his colleagues to honor his name and has been operating for over 30 years with the support of his family. Since 1991, the foundation has awarded non-repayable educational scholarships to support

financially disadvantaged geoscience students and the children of deceased TPAO employees in need of assistance. Throughout this period, hundreds of students have been awarded scholarships. It is his wish to honor the memory of the late M. Ozan Sungurlu by ensuring that the service of the foundation will continue for many years to come (Balkaş, 2014).

M. Ozan Sungurlu, vice president of the TPAO, passed away on 27 November 1990, at the age of just 51, as a result of a tragic traffic accident. He was en route to his field studies and could not be saved despite all medical efforts. Almost 34 years after the death of this illustrious and extraordinary Turkish geologist, this humble compilation of his life and character intends to serve as a tribute, homage and inspirational example to future generations of geoscientists in Türkiye and the rest of the world. His warmth, almsgiving and enthusiasm for exploration were a source of enormous scientific inspiration for all those who worked at the TPAO, and the whole TPAO community sorely misses his presence.

In 2001, thanks to the support and contributions of Şengör, the American Association of Petroleum Geologists (AAPG) chose to present an honorary award in the name of M. Ozan Sungurlu to a successful international student to be selected every year. M. Ozan Sungurlu was a shining example for many young geologists, and his legacy has allowed them to receive an international education and learn modern geological thinking overseas. In addition, he encouraged the TPAO to participate in international meetings.

2 Conclusions

In conclusion, M. Ozan Sungurlu is honored as one of the pioneers of geology in Türkiye. He dedicated his life to his country and the study of geological sciences and left an example of a noble and fruitful life worthy of international recognition. He was an outstanding field geologist and a true patriot who always worked to improve the socioeconomic conditions of the country. His example will continue to inspire and encourage new generations for many years to come to face the scientific challenges ahead and continue to explore the geology of Türkiye.

Appendix A: M. Ozan Sungurlu – publications 1970–1992

1. Sungurlu, M. O. and Soytürk, N.: Sivas havzasıve civarının jeolojik etüdü, TPAO Arama Grubu, No Open File Rep. 482, 26 pp., 1970.
2. Gümüş, Ö. and Sungurlu, M. O.: Antalya civarında yapılan jeolojik etüt hakkında not, TPAO Arama Grubu, No Open File Rep. 644, 32 pp., 1970.
3. Sungurlu, M. O.: İstanbul Boğazı– Bulgaristan sınıraarasında Karadeniz kıyıolanaklarının jeolojisi,

- TPAO Arama Grubu, No Open File Rep. 535, 15 pp., 1971.
4. Sungurlu, M. O.: Teke yarımadasıdoğu kısmının jeolojisi, TPAO Arama Grubu, No Open File Rep. 712, 44 pp., 1972.
 5. Sungurlu, M. O.: VI. Bölge Gölbaşı–Gerger arasındaki sahanın jeolojisi, TPAO Arama Grubu, No Open File Rep. 802, 23 pp., 1973.
 6. Sungurlu, M. O.: VI. Bölge kuzey sahalarının jeolojisi ve petrol imkanları, TPAO Arama Grubu, No Open File Rep. 871, 29 pp., 1974.
 7. Sungurlu, M. O.: Sinop sahalarının petrol imkanları, TPAO Arama Grubu, No Open File Rep. 908, 11 pp., 1975.
 8. Letouzey, J., Biju–Duval, B., Dorkel, A., Gonnard, R., Kristchev, K., Montadert, L., and Sungurlu, M. O.: The Black Sea: a marginal basin. Geophysical and geological data, in: *Structural History of the Mediterranean Basins*, edited by: Biju–Duval, B. and Montadert, L., Editions Technip, Paris, France, 363–376, 1977.
 9. Sungurlu, M. O.: Doğu Toroslarda yapılacak saha çalışmaları için öneriler, Arama Grubu, No Open File Rep. 1225, 20 pp., 1978.
 10. Sungurlu, M. O., Açıkbş, D., Perinçek, D., and Balkaş, Ö.: Körkandil ölçülmüş stratigrafik kesiti, TPAO Arama Grubu, No Open File Rep. 7880, 3 pp., 1978.
 11. Sungurlu, M. O. and Arpat, E.: Türkiye doğu kesiminin jeolojisi ve beklenir kabuk yapısı, TPAO Arama Grubu, No Open File Rep. 1204, 14 pp., 1978.
 12. Açıkbş, D., Sungurlu, M. O., Akgül, A., and Erdoğan, T.: Geology and petroleum possibilities of Southeast Turkey, TPAO Arama Grubu, No Open File Rep. 1410, 33 pp., 1979.
 13. Yılmaz, Y., Sungurlu, M. O., and Perinçek, D.: Cilo dağlarında eski bir okyanus kabuğu, in: *Proceedings of the 33rd Geological Congress of Turkey*, AltınlSymposium, TMMOB JMO, MTA, Ankara, Türkiye, 5–9 March 1979, 6–7, 1979.
 14. Şengör, A. M. C., Yılmaz, Y., and Sungurlu, M. O.: Tectonics of the Mediterranean Cimmerides: nature and evolution of the western termination of Palaeo–Tethys. Geological Society, London, Special Publications, 17, 112–77, 1984.
 15. Sungurlu, M. O., Perinçek, D., Kurt, G., Tuna, E., Dülger, S., Çelkdemir, E., and Naz, H.: Elazığ–Hazar–Palu alanının jeolojisi, Petrol İşleri Genel Müdürlüğü Bülteni, 29, 83–189, 1985.

16. Ketin, İ. and Sungurlu, M. O.: GDA’da kenar kıvrımlarıkuşağıçinde yer alan Çermik–Kevan antiklinalinin jeolojisi hakkında tarihsel bir inceleme, TPJD Bülteni, 4, 1–8, 1992.

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References

- Balkaş, Ö.: Tribute to Masters: Mehmet Ozan Sungurlu (1939–1990), in: *Proceedings of the 67th Geological Congress of Turkey*, TMMOB JMO, MTA, Ankara, Türkiye, 14–18 April 2014, 14–15, 2014.
- Dervişoğlu, S. G.: Kardeşim Ozan Sungurlu: ilk baskı, Bizim Matbaa, İstanbul, Türkiye, 91 pp., 2022.
- Şengör, A. M. C., Okay, A. I., and Görür, N.: Büyük bir doğa bilimci: Ozan Sungurlu’nun ardından, Cumhuriyet Gazetesi, Bilim ve Teknik Dergisi, 4, 12–16, 1991.