

DOC REF NO.: ARCTIC-250205-TRIP-REPORT-01-SODOM-MOUNT (Preliminary Edition, Rev. 01.00)

Alonex Arctic Autotravels - Wingate Tour Guide Course Trip Report #01 - The Dead Sea Mount Sodom & DSW

Compiled by Fr. Tverdovlev Oleg Ibn Gregory

Tour Guide(s): Mr. Akiva Geller, Mrs. Gila Zoar, Mr. Yoni Stern

Course coordinator: Mr. Akiva Geller

Created: February 5, 2025

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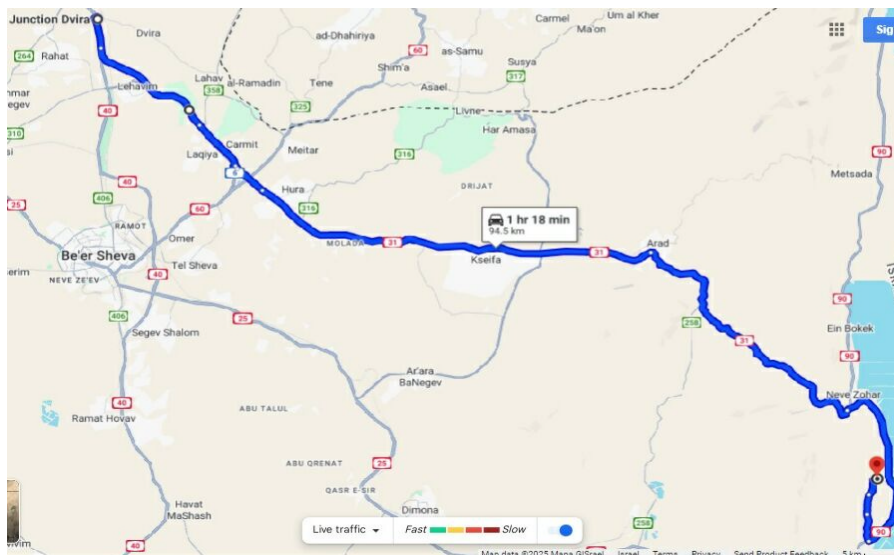
Last modified: February 25, 2025

Trip Dates: 09.12.24, 17.12.24

## 1. Trip Summary



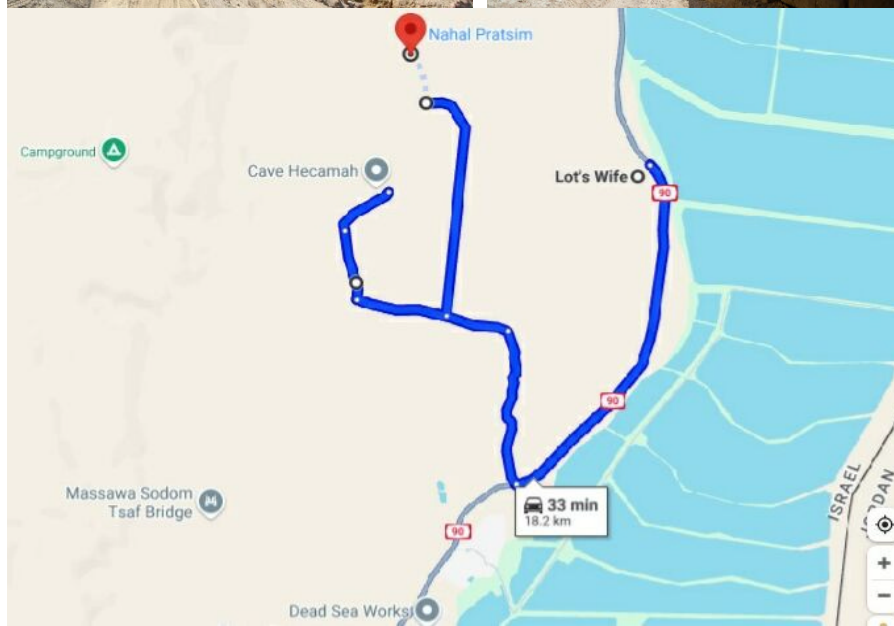
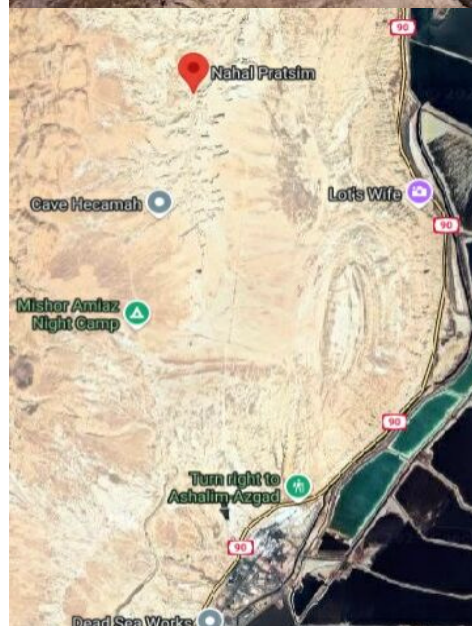
1.1. The trip has been started on the Highway #2 from the Yakum Bus Station. The next stop collecting the rest of trip participants was The Cinema City near Gilot Junction – the cross of Highways ##2 & 5. The final target of the trip was the South of The Dead Sea. The travel was performed via highways ##20, 4, 7, 6, 31 & 90. The distance of the route is 203km.



1.2. The first breakfast stop was on a Dor Alon Gas Station at the Dvira Junction of the highway #6. The breakfast duration was about 20min, from 07:50 to 08:10.

1.3. A short drive on the Amiaz Plain Night Camp to the beginning of the Fish Trail and a guided circular walking trip along the bottom of the Pratsim River.

1.4. Guided travel along of the Fish Trail descending to the Highway 90 and walking along the Highway to the lockout forr Lot's Wife.







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- 1.5. Driving a few minutes to The Dead Sea Works & Moshe Novomeisky Visitor Center, dinner break on the open air at an café of the center.  
1.6. Guided tour inside a few buildings of the Dead Sea Works Visitor Center and around, watching several movies about hard development of the Works.



- 1.7. Completion of the Journey and a mirror departure to the home, via Arad, with a short stop on the Dvira Junction, via Gedera, Ashdod Interchange & Tel Aviv.



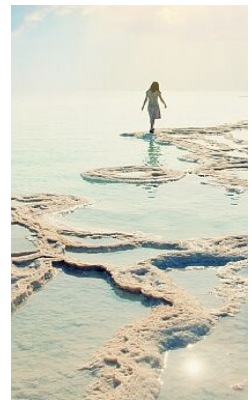
**Low Gear Death Way #31 (09.12.24)**

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## 2. Time Table of the Travel to The South of Dead Sea and to The Mount Sodom

Places and Events Description	Time period	t Spent
Auto travel from Yakum (2) bus station to the Dvira Interchange (6/40)	06:30-07:50	01:20
Morning Breakfast on the Dvira Interchange Gas Station Center	07:50-08:15	00:25
Auto travel from Dvira Interchange to Nahal Pratsum (River)	08:15-09:45	01:30
A short closed loop route and tour guidance via Mishor Amiaz Night Camp and Nahal Pratsum	09:45-10:20	00:35
Auto Travel to beginning of the Route Hadgim (?)	10:20-10:45	
A tour guidance through the Route Hadgim	10:45-13:30	02:45
A short auto travel and tour guidance about Wife of Lot	13:30-13:45	00:15
Auto traveling to The Novomeysky Dead Sea Works Visitor Center by the Salt Works (ICL)	13:45-13:55	00:10
Afternoon Lunch in The Moshe Novomeysky Dead Sea Works Visitor Center coffee bar	13:55-14:15	00:20
An excursion and films watching about the Dead Sea Works founding and development	14:15-15:45	01:30
Completion of the journey and a mirror departure to the home	15:45-18:45	03:00
Travel Time Total:		12:15
Auto Traveling Time total:		06:25
Tour Guidance Time Total:		05:05
Brakes Time Total:		00:45



## 3. Gllot Junction to the Ashdod Junction Tour Guiding while the Road Traveling

We are boarding on our bus on a Cinema City bus stop, in the South direction, close to the big Gllot Junction, interchanging the Highways ##2, 5, and 20 and the Namir Road #2. Highway #2 ends at the Gllot Junction, connected to the highway #5, and it is continued via Namir Blvd., from the North Tel Aviv to Savidor Rail & Bus Stations), and as well it is connected to the Ayalon Highway #20.

The Ayalon Highway was designed to cross quickly the Tel Aviv City from South to North. The road was first opened in 1982 in the section between the HaLacha Interchange and the HaShalom Interchange. Today it extends for 29 km, from Shayim in the North, and to Rishon LeZion in the South. It is a main transportation artery of the Tel Aviv-Yafo metropolitan area, bi-directional North-South and connects many cities in the Gush Dan and the cities of the the peripheral areas, and such cities as Herzliya, Ramat HaSharon, Tel Aviv, Ramat Gan, Givatayim, Holon, Bat Yam, and Rishon LeZion. Along the way, we pass through several important interchanges as KKL-Keren Kayimet Lelsrael, Rokach near Tel Aviv University, Expo Center and near the Yarkon River, and also Arlozorov St., HaShalom Rd, LaGuardia St., and Kibbutz Galuyot St. interchanges. There is a split near South Tel Aviv and close to but before the Holon Interchange, where Highway 1 continues to the Ben Gurion International Airport and to Jerusalem, while the Ayalon Highway turns between Holon and Bat Yam and continues to the South. On the descent to Kibbutz Galuyot, more exactly on the Holon Interchange, we can also enter to the old road #44 to Jerusalem, which goes from Jaffa through the Beit Dagan area, the Shimshon Intersection, and Beit Shemesh to Jerusalem. The Ayalon Highway routes are named after the Ayalon River that flows through it from South to North and empties into the Yarkon river. The Yarkon forms the southern border of the Sharon region. There is a railway which goes along the Ayalon Highway. Between the Halacha Interchange and the La-Guardia Interchange, the "City" of Tel Aviv is being developed, characterized by high-rise office and residential buildings, some in Tel Aviv and some in Ramat Gan, from the both sides of the Ayalon Highway.

### Holon City.

Continuing to South, the Ayalon Highway divides Holon and Bat Yam towns. Holon (200,000 residents) began in a neighborhood named Green that was established South of Tel Aviv in 1924. Four additional neighborhoods had been established around it in 1937. The neighborhoods were united into a city called Holon under pressure from the British government and the Hagana organization for security reasons in 1940, and named after the dunes. Holon is today known as the Children's City due to its attractions for children: a children's museum, a journey in the dark, and a comic animation museum. There are three interchanges leading down to Holon, which extends East of the Ayalon Highway, South of Tel Aviv-Yafo and West of Ayalon lies Bat Yam,

### Bat Yam City.

Bat Yam (130,000 residents) was established in 1926 on the seashore, and for years suffered from a low image. In recent years, Bat Yam city has extended and become more sought, due to the rise in housing prices in Tel Aviv. The development of the light railway and the construction of modern high-rise buildings near the sea and in other neighborhoods of the city, make Bat Yam more beautiful and attractive for Israeli citizens and tourists. The city is often called as the capital of the Russian immigration and tourism.

### Rishon LeZion City.

Near termination of the Ayalon Highway, we see Rishon LeZion city (260,000 residents). Rishon LeZion was established as a colony in 1882, during the first immigration from Russia. The colony was located several kilometers East of Ayalon, but with the expansion of the city in the middle 1970's, the eastern and western residential neighborhoods were established an extensive commercial area with shopping centers crossed by the Ayalon River. That is why Rishon Lezion city is called often as the city of malls. As well, the city has many cultural institutions and a famous symphony orchestra. After the exit from Rishon Lezion, the Ayalon Highway ends and merges with the Highway #4, which continues South along the southern coastal plain, where the urban area ends.

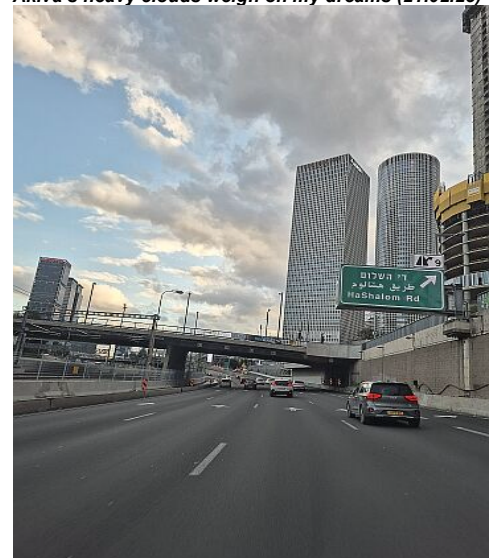
In the sands of Rishon LeZion, we can see Shefdan, which is the Gush Dan waste water treatment site, which purifies the water to a secondary level, suitable for irrigating fields. 75% of the irrigation water in the Negev is the purified wastewater. The road #4 passes through an area of sand dunes and you can see typical vegetation, such as Acacia Mechkala (an invasive species) and desert Rotem bushes.



**Rainbow on the Road points the way home (21.02.25)**



**Akiva's heavy clouds weigh on my dreams (21.02.25)**



**A real HiTec - the Road without traffic jams (21.02.25)**



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Yavne City.

Passing the city of Yavne (58,000) inhabitants, located East of the road in the South direction. Yavne City began in the Middle Bronze Age in the second millennium BC, near which tombs from the fourth millennium BC were discovered. Rabbi Yochanan ben Zakkai asked Vespasian during the Great Revolt, "Give me Yavne and its sages." He fled Jerusalem and established the Sanhedrin in Yavne. West of the Sorek River, which comes from the Jerusalem mountains and flows into the Mediterranean Sea near, is the Sorek civilian nuclear Center.

Ashdod City.

Further along the road #4, we reach Ashdod (230,000 inhabitants). The city has been founded in 1956 and has the largest seaport in Israel. The Ashdod sea port was opened in 1965, when the Tel Aviv Port and Jaffa Port were closed for commercial activity. Ashdod is a city that absorbs immigrants, basically from the former USSR, Ethiopia and France. The city and has cultural institutions, orchestras, and museums. Ashdod is one of the five Philistine capitals. Ashdod, Ashkelon, and Gaza are located on the Mediterranean coast, and therefore the area between them is also called the Philistine Coastal Plain.



**An Ashdod Port Entrance - the Road #41 termination.** Some Oleg attempts to escape to a 45min lunch on a heavy semi-trailer truck of a transport collapse on the road, by turning left. The picture was taken on 13.01.23 @13:09:42. And now the Port is near idle due to there is no cargo to transport.

#### **4. Road Guiding From the Coastal Plain to the Judean Lowlands and South to the Negev, and from the Ashdod Interchange to the Dvira Junction**

We go East from Highway #4 to Highway #7 via Highway #41 leading West towards the long Highway #6. On the right is the Yavne Group - a religious kibbutz established in 1941 by immigrants from Germany. The kibbutz was not privatized, it has a watch factory and a canning factory.

On the left, there is a block of six "moshavim" and a community settlement called "Asheret". This block is called Gush Gederot after the nearby Gedera. The Gedera interchange connects Highway #7 to Highway #40. Highway #40 is a long highway that starts from Kfar Saba in the North and passes through Hod Hasharon, Petah Tikva, Lod, Ramla, Rishon LeZion, Ness Ziona, Rehovot, Gedera, Beer Sheva, Mitzpe Ramon and connects with Highway #90 North of Eilat. Gedera is located North of Highway #7, and is now a local council, originally a recreation colony (Beit Yaakov Lecho and Nelecha), which has been founded in 1884. It is one of the seven colonies of the first aliyah. South of Gedera is the Kanot Industrial Area. Kanot is a youth village that was established in 1951 as part of the youth aliyah. Today it is managed by Naamat.

Towards the end of Highway #7 on the right near the Sorek interchange is the settlement of Yad Binyamin, also known as Binyamin Mintz, this is a religious settlement of Agudat Israel, it began as an educational institution but in the 1990s a settlement was established around it and today it is a community of 4000 people. Highway #7 crosses the southern coastal plain from West to East, at the Sorek Interchange. We turn right (to the South direction) on Highway #6, this is a three-way interchange with Highway #3 that begins at the Silver Junction North of Ashkelon and continues to Modi'in, Highways ##7 and 6. The Highway #6 is a toll road whose construction is financed by the concessionaire (Derech Eretz) who collects a fee and pays royalties to the government. But the part of Highway #6 from the #7/#6 Interchange and to the South of the Highway #6 and vice versa, is free of charge.

The concession expires in 2029, and then there will be a new tender. Driving South to our right is the eastern part of the coastal plain and to our left we see the depressions of the Judean Lowlands. On the right we see railroad tracks and in the distance Kiryat Malachi - the development town that failed to rise, the city of the ousted president Moshe Katsav. On the sides of the road are fields with industrial field crops - mechanized agriculture that does not require manual labor (wheat, barley, hummus, peas, corn).

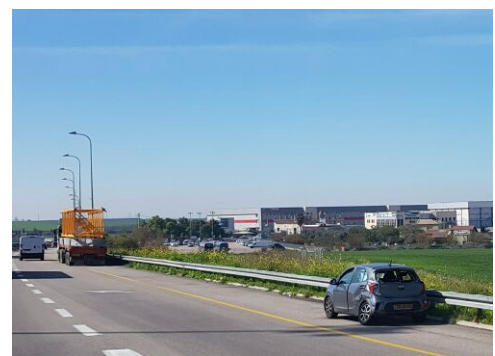
Further South and to the right is a small settlement called El-Azi - a few houses of a Bedouin clan. On the left is the chimney of the Tzaft Power Station near Kfar Menachem, next to it is the archaeological mound of Tel Tzaft, which is identified as the Philistine city of Gath today, the city of Goliath the Philistine who was killed in battle against David in the Valley of Elah.

On the right is Kiryat Gat, which was established in the early 1950s, next to a mound that was mistakenly identified as Tel Gat. Intel built a large factory there, and has plans to build another one, but it is unclear when this will happen, due to the global economic situation. The city is developing towards the North.

The Kiryat Gat interchange connects Highway #6 to Highway #35, which crosses Judea, starting in the West at the Barakiya junction near Ashkelon and going East through Beit Guvrin, Tarquimiya, Halhul and reaching Hebron. This is an ancient road from the Roman period - more than 2000 years old.

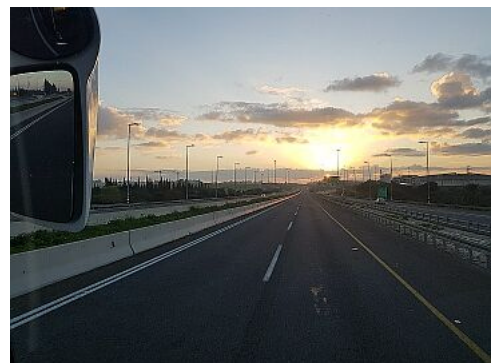
On the right is a block of settlements: Noam, Shalva, Even Shmuel. Highway #6 merges with Highway #40. They will split again further South in the Dvira Junction area, where Highway 40 will continue South to Beersheba and we will turn left towards Arad city. We are approaching the southern side of the coastal plain, Nahal/river Shikma, where the fertile Bikaner Reserve is located. Recommended time: January to April, preferably on foot - you can also drive, West to the Kibbutz Bror Chail area, Or Haner near Road #232.

The Beit Kama Junction - named after Kibbutz Beit Kama, established in 1949 by Hashomer Hatzair. The Kibbutz is used to make a living from the Kama fields, today it has a "Kamada" factory - a biotechnological pharmaceutical factory. In the past, the junction was a popular stop point, this junction is also one of the exits towards the Bedouin city of Rahat. On the right, jojoba trees produce oil from their fruits. Kibbutz Hatzetim produces 40% of the world's jojoba oil.



#### **Highways ##6 and 3 Upper-Junction, Yad Binyamin.**

This gray ladybug flew out from the Highway #6 to the Road #3 on a red traffic light, against a sun light, near Yad Binyamin. A truck hit her in the ass on the left side, she spun around, and she bounced off it. Then, being in shock, she hit the full gas and got revenge on this truck by hitting it in the left side with her snout. Some Oleg was driving a bus full of children there. He called an ambulance and his dispatcher with his left hand. And with his right hand, he continued driving the bus as instructed by the dispatcher, without any headphones, because Oleg is very conservative and never used headphones. On the way back way, he took this photo on 08.02.24 @11:24:30, so that it would remind him and other drivers how it could be dangerous to be blinded by a sunlight.



#### **The Dreams Rise on the Road (05.01.24 @06:55:16).**

Somewhere on the Highway #431, on a way to IMI - Elta Systems via Rehovot City, before collecting workers and bringing them at their work place in Ashdod City. This picture is relevant to this trip report not more than my past dreams about auto traveling to the Dead Sea. I like my life, it is very interesting, even if it is not easy commonly. This is my alone, but alive and full of adventures life. Me, and such a long and short Road.



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## 5. Traveling from Dvira Junction to Arad City, The Bedouins in the Negev and in the Arad Valley

We continue our travel to the South via Highway ##6/40, which is still unified for a short distance. On the right we can see the outskirts of the Rahat City – one of the seven cities established for the Bedouin population in the Negev. The Rahat (Shukat in "He") was established in 1972, and is the first of seven Bedouin cities that were founded during the following years in the 1970s. Among the additional cities are Tel Sheva, Segev Shalom, Kasiyfa, Hora, Lakiya and Arara. These seven cities are home to 2/3 of the Bedouin Diaspora in the Negev, mainly around the Be'er Sheva and the Arad Valleys. The Rahat City (80,000 inhabitants) is currently the largest Arabic city in Israel. However, the social and economic situations are too low, and the city's infrastructure is neglected.

There is also a cultural change among the Bedouins - in the past they were nomadic and did not build permanent buildings. But in recent decades the Bedouins have become permanent residents, so in addition to houses they are building mosques, we can see the prominent minarets.

To the South of us is an industrial area and the successful Soda Stream factory that was located in Ma'ale Adumim, but moved to the new location following the BDS boycott of the occupied territories. This move mainly affected the Palestinians who worked in the factory and lost their livelihood.

Highway #40 and Highway #6 split, Highway #40 continues South to Be'er Sheva, and we turn left onto Highway #6. On our right side we see the communal settlement of Lehavim, established in the 1980s, is a settlement full of academics and doctors from Soroka. The area is desert with less than 200mm passing through the Lahav 40,000 dunams. In the first years, the trees were watered until the seedlings grew.

Lakiya Interchange, the Bedouin city of Lakiya on the right is also not in an improved condition. The Shoket Junction – is the interchange of Roads ##6, 60 & 31. We are leaving Highway #6 and traveling on Road #31, West towards Arad. The Road #60, known as the Avos Road, begins in Be'er Sheva and ascends North through the central mountain avenue, Hebron, Jerusalem, Nablus, Jenin, and Nazareth in the Galilee. Highway #31 passes over the road #60, on the right is the Lakith area (named after Lakiah). An intelligence corps complex like Unit 8200 is supposed to pass here, on the left (North) the edge of Mount Hebron.

We are now in the Be'er Sheva - Arad valley that separates the Negev Mountains to the South and the Judean Mountains to the North. We approach in the Bedouin city of Hura. After the War of Independence, the Bedouin population numbered 12,000. Today they are more than 300,000. The Bedouin were scattered throughout the Negev. Today they have been pushed into the Be'er Sheva-Arad-Dimona triangle by the Israeli Government. In other areas, outside the triangle, there are many firing ranges used by the army. Disputes over land ownership began as early as the Ottoman period. On the right side is an example of the scattered settlements (the Bedouin Diaspora). These are people who did not agree to give up the land they claim that it is theirs. They live in unrecognized villages and therefore do not receive water, sewage, electricity and communication infrastructure, but they get education and health care. Education through a regional school with the challenge of getting to school. Some of them connect to water pipes pirated, have solar systems and generators for electricity.

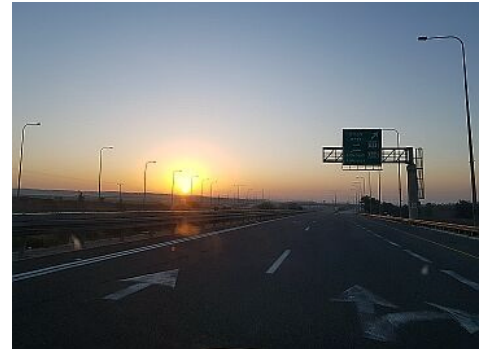
On our right side is the Negev mountain range, and on our left side are the southern fringes of the Hebron mountain range. Both of these are part of the central avenue. We are in the Arad Valley. The Arad Valley and the Be'er Sheva Valley are adjacent to each other, on the slopes of Mount Hebron a forest is planted, the Yatir Forest, named after the ancient settlement of Yatir, the remains of which are there, we cannot see it. This is the largest planted forest in Israel (A methodical note: It is not acceptable in a road guiding to detail things that are not visible from the road).

The Kfar Derigat interchange is on our left side. It was established by peasants from the Hebron area who settled in caves in the South of the mountain. Today it is a very developed village with a population of academics and doctors, well above the national average, a guide named Jaber lives in the village who gives tours of the place, during the tour he shows the cave where his ancestors lived.

On the right is another Bedouin town, which is called Seyfa. We pass the Tel Arad Junction where Road #80 crosses Road 31, and ascends North on the eastern spur of the Hebron Mountains. (On the western spur (finger) rises Highway #60, which we discussed earlier. On the left side we see Tel Arad. Two cities from different periods remain in Tel Arad Red. The first is a fortified city from the Early Bronze Age, 3800 BC. The second city is from the Israelite period, 1000 BC to the Byzantine period.

We are about eight kilometers from modern Arad. On the left side the Hebron Mountains extend South. Methodical guidance, even roads with a longitudinal road North-South, odd roads East-West. We get on Highway #31 at its western end and we move East. We are approaching the western outskirts of the Arad City.

Arad is one of the last of the development mountains, established in the 1960s, well planned, in terms of urban planning and employment. During the first decades of its existence it was considered as a Successful city. In the 1990s, the situation changed. The Arad Festival of Hebrew Singing took place from 1982 until the summer of 1995, when three teenagers were killed by a stampede. Since then, there have been several attempts to renew it in a limited format. The city has absorbed immigrants from Russia, Ethiopia, and many Bedouins have also purchased apartments there. The housing market price is low. Arad is 600 meters high, the weather is comfortable, and it is a dry place. The desert is ideal for asthmatics and those with breathing difficulties, but there is a problem because there is a lot of dust. Tourist projects have been closed down, today there is only one active hotel left (Inbal - not recommended), and there is a good and recommended ANA hostel in the city. Gur Hasidism takes advantage of the low market price and many of its Hasidic followers are moving to Arad, today there is great tension between the different populations.



**The Dreams Rise on a way to the Dead Sea via Arad, near Lakish/Lakiya Interchange (02.12.23 @06:30:31).**

*Actually, I do not like this way, there is near nothing interesting and remarkable in comparison with the way via Latrun, Jerusalem, Ma'ale Adumim, Lido and Kalia. It looks like this way is liked and selected by tour guides and bus drivers just because of presence of a Dead Sea Cosmetic store in Arad, where any bus is stopped intentionally just to spend a few money by tourists, and just to earn a few percents of that group purchasing, something like NIS100 basically, by tour guides and drivers. That is a very cheap tradition, which I do not like, as cheap as the mountains of uncollected garbage along this way, where it is disgusting to drag even a 40ft cargo container.*

*And in addition, the Low Gear Way #31 from Arad to the Dead Sea is too dangerous Road of Death for the Israeli drivers, and it is very annoying due to heavy trucks, and "tus-tus" licensed Waze limited drivers slowly moving on their automatic gears or on their electrical flammable auto-toys there.*



**Sodom Arad Sign on the Low Gear Death Way #31**



**Aerial View on the Arad to the Dead Sea Serpentine**



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## 6. The descent to the Dead Sea through the Judean Desert from Arad to Mount Sodom

Leaving Arad, we begin a descent from an altitude of 650m to minus 430m, so far we have been in the valley, but now the landscape changes. Dolomite limestone rocks with some flint - sedimentary rocks, due to the folding of these mountains rose and formed, the plain was created where an area was under the sea. There is the Nahal Yaelim, next to the road on the right side, and a canyon excavation. From the Arad area East towards the Dead Sea, dozens of hiking trails in channels and varying degrees of difficulty (recommended). This road was liked by motorcyclists, suicides, especially on weekends, many took their lives, occasionally you see monuments in their memory.

We pass through the Hatrurim Junction, named after the Hatrurim geological formation. The junction is a meeting point with Road #258, which connects Highway #31 with the Highway #25, which reaches the Arava Junction. Highway #25 connects Nahal Oz in the west with the Arava Junction in the East. At the Arava Junction, Highway #90 passes, descending we cross the southern Judean Desert, which is on our left side, and on our right side are the Negev Mountains. We approach zero altitude (the level of the Mediterranean Sea). On our left side, a marked hiking trail passes with a route leading north towards Masada. There are two roads that cross the Judean Desert from East to West or West to East. Highway #31 (which we are traveling on) in the South and Highway #1, which descends from Jerusalem through Ma'ale Ha'Adumim in the North. We will reach soon the Atakim cliffs and see the Dead Sea bathhouse on the left. On the left, immediately, the view of the Nahal Zohar (river). Up on the mountain, we see hard dolomite rocks, down below, rocks of the (Havor) Halashon formation.

The Nahal Zohar flows into a delta of three streams: Nahal Zohar, Nahal Peretzim and Nahal Himer.

All three rivers drain into the Zohar plain on the shores of the Dead Sea. On the left is the Zohar lookout, worth a stop. In the gorge is a Zohar lookout from the period Mamluk. Nahal Zohar was an important route from the Dead Sea to the desert plateau. The narrow passage through it allowed for the transfer of salt to pedestrians. In Arabic it is called Naqab-e-Zahara (the narrow passage).

Highway #31 ends at Highway #90, where we turn south at the Zohar Junction. Highway #90 continues to Metula from here to the North, and to Eilat City in the South direction.

We can see a system of shelters on the side of the road – easily recognizable by their many trunks. There is the bend of the mouth of the Nahal Himar on the right side, passing by Ashalim. The large block to our right side is the Mount Sodom, and artificial evaporation ponds of the Dead Sea factories are located on the left side. The Mount Sodom is a mountain near completely of salt. We pass the end point of the fish trail on the right side, where we will descend on foot later. The Lot's Wife Rock is on our right side, and a relatively new Visitor Center, named after Moshe Novomeysky, is on the left side.

Towards the Amiaz Plain, we can see the white potash heaps on the left. That is the main product of The Dead Sea Works. We ascend on the dirt road (marked red), the road is rough, but slippery after rain, we are on the southern side of Mount Sodom. We have passed Mount Sodom and are on a huge flat plateau, which is the Amiaz Plain. On the West side of Mount Sodom 65 meters above the Amiaz Plain, the red road meets a blue road, we continue on the blue road until the marking of the beginning of the Nahal Peretzim trail.



**The Death Way #31 driven by a camera (09.12.24)**



**Looking for Akiva, The Red Road #31^#90 (09.12.24)**

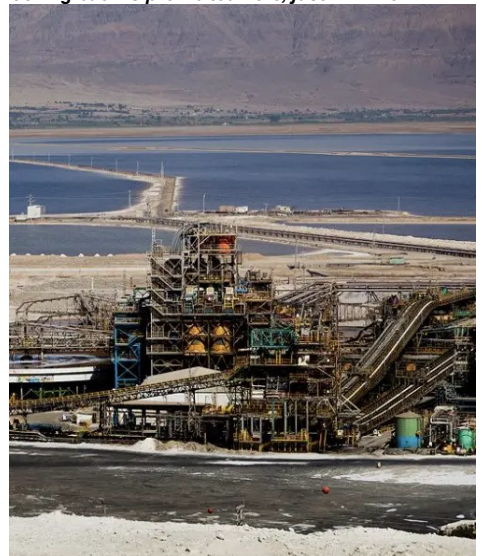


**Looking back is prohibited here, just in mirror**

*Штурлиц подумал, кажется это хвост людей Акивы, они так и ждут, что-бы я оглянулся..*



**ICL – Dead Sea Works, Southern Plant near Mont Sodom**





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## 7. The Amiaz Plain and Nahal Pratsim

The beginning of the hiking trail in Nahal Pratsim is on the Amiaz Plain. We can arrive by car on the blue road and identify the beginning of the trail in Nahal Perutsim by the signs. The Amiaz Plain is spacious at the point of descent to Nahal Pratsim. Mount Sodom is in on East, and mountain range, that is the edge of the Atakim Cliff, is located on the West, the Judean Desert is on the North (its southern border is Nahal Himer), and the Negev Mountains is on the South. Within the northern Negev Mountain is also the Hatza Ridge, where the Hatza Crater is located. (The Small Crater).

The Sodom Square is on the East. The Mount Sodom and the Amiaz Plain are therefore at the connection between the Judean Desert, the Negev Mountains, and the Syrian-African Rift.

The Amiaz Plain got its name from the word goat. The Bedouin shepherds would graze in the desert in the winter and they would drive their flocks towards Sodom in the summer, where there was an oasis with water springs, and food for the flocks at the exit of the streams. Three rivers Pratsim, Azgad and Ashelim drain into this plain towards the Rift Valley and the Dead Sea. Nahal Ashelim became famous with the ecological disaster when in 2017 toxic acidic wastewater from the Rotem Ampert plant drained into it. The leak affected flora and fauna, killing a third of the goats living in the river. The river reopened to the public after three years in 2020. It is advisable to hike in Nahal Ashelim during the spring and fall transition seasons when it is not hot. There is a challenging trail for the more adventurous that ascends Nahal Azgad and descends Nahal Ashelim.

The descent to Nahal Pratsim is easy, the river descends into the Amiaz Plain. The Amiaz Plain is the bottom of the ancient Dead Sea, which is composed of minerals that sank to the bottom of the Dead Sea, mainly the tongue formation. The formation was deposited on both sides of the Jordan River during the existence of the tongue sea, it is sometimes called "tongue marl" due to its color and brittleness, but this is a mistake since the tongue formation is not composed only of marl. The ancient Dead Sea finally retreated 16,000 years ago and the plain was exposed, (very young from a geological perspective), the river was submerged because the rock is soft and brittle, crumbles when pressed with a finger, the walls reveal a spectacular layered appearance, the white layers are the tongue formation and the dark is clay that was washed away with rivers from the mountains. The curling of the layers is the result of seismic activity that wrinkled the layers. The exit point from the river is clear on the right. Further along the river, we can reach the Flour Cave, which has been closed to traffic for 15 years due to fears of collapse.

The return is a short walk back south on the Ahiaz Amiaz plain above the eastern bank of Nahal Perutsim.

Travel east on the black trail until it meets the blue trail, where we travel north until it ends. the Fish Trail route for a hike up Mount Sedun begins there, and down to the Dead Sea. Alternatively, we can descend Mount Sodom via the more southern Ladder Trail.

### Guiding Methodological Notes:

*a. It is no longer customary to guide with Madonnas(?) because it is noisy, so audio kits should be used. In an isolated open area like the Ahiaz plain, they can be used.*

*b. The guide goes first, a camper on duty or someone designated goes last - a collector. That is the way we are sure, that the entire group has reached the next travel point. If someone wants to leave, they must report to the collector so that they would not be lost.*

*c. Stop for explanation, preferably find a shady spot.*



**Gully in unconsolidated Dead Sea sediments, exposed by recession of water levels**



**Formations in the salt rocks & great view from there**



**An excellent observation point on the top of the cliffs**



**Aerial View of the Nahal Pratsim**



**Soil Levels Formation inside Nahal Pratsim Riverbed**





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## 8. The Fish Trail and Mount Sodom

The Fish Trail is so named because of the fish fossils, that as they said, to have been seen along the trail to the Dead Sea. The trail is marked blue on the trail map, starting from the West on Mount Sodom, continuing South to the Kaffor Lookout (the Fronkel) and then descending to the Dead Sea. The total is of 3.5 km, the first 20 min of ascent to the summit rise 63 m. The bottom of the descent is 265 m. The trail markings are blue (on a white background), do not get off the trail, especially on the Mount Sodom, which is full of potholes and steep cliffs. The State of Israel, relative to its size, is the most marked country in the world. The markings are made using four colors: blue, green, red, black. The color of the trail markings has no meaning, their purpose is to separate. There will be never colors crossing the same color. Each trail has a five-digit number.

The Mount Sodom is a mountain of salt. The cover layer is marl, clay, and gypsum. The components of the cover layer with an average thickness of 40m cover the salt layers that are exposed downhill towards the Dead Sea. We see lower layers that were exposed by weathering and erosion (weathering and transportation). Salt is a sodium chloride mineral (halite - from the Greek halos salt, lithos stone).

Towards the end of the ascent, stop before the summit, warn the group, the view up is amazing but the ridge line is like a knife with a sharp slope on the other side, so you must spread out along it carefully to enjoy the view, an organized stop for observation is made later from the Kaftor observation point where there is plenty of space.

The Mount Sodom is not part of the Ha'atakim cliff. It is an isolated block. Its length is 11 km North-South, its width is 2 km, its height is 160 m below the Sea Level. Its height above the Dead Sea is about 260 m. The Dead Sea is about 430 m below the Sea Level. The Dead Sea basin consists of two basins, the northern basin is deep, its bottom is at a height of minus 730 m, the water depth reaches up to 300 m. The southern basin is shallow and its depth until the first half of the twentieth century was less than 10 m. With the contraction of the sea, it dried up, and evaporation ponds were built on it, the evaporation ponds are fed by water coming from the northern basin. Ein Bokek hotels were built around evaporation pond number five, the depth there is 2-3 m.

A brown embankment stretching from North to South in the middle of the sea is the border with Jordan, behind which there are Jordan's evaporation ponds that operate according to the same principle. The Moab Mountains are located on the opposite side of the Dead Sea. The two largest islands in the sea are islands of salt that are scraped from the bottom of the ponds and transported to the islands so that the level of the bottom of the ponds does not rise. The Dead Sea Works produce three main minerals: potash, magnesium, metallic, and bromine.

### Guiding Methodological Notes:

*There is an intersection/cross of our trail (marked in blue) with an unmarked trail. This may be a swan point. You need to know the way before leading a group. At the swan point, stop and make sure that the guide is coming or have someone point out the correct path for passersby until the guide arrives. Near the Swan Point, blue trail markings were placed to help prevent mistakes. Further along the route, before reaching the Kaftor Lookout, there is a point with a relatively difficult climb, starting with a small climb on a small cliff step and then up it. Care should be taken to help those who have difficulty climbing and ascending it.*

In a place shaded by a cliff wall, this is a good opportunity to explain the history of the lakes in the Dead Sea Rift and the formation of the Mount Sodom. The Mount Sodom is a salt mountain covered in marl, clay, and gypsum.

The Dead Sea Rift is part of the Syrian-African Rift, which begins in the Mozambique and Tanzania areas and extends to southern Turkey for 6,000 km. Tectonic plates have moved and moved away from each other. The rift was formed and separates two plates, the African Plate to the west and the Arabian Plate to the east. The Sinai Desert, Israel, and Egypt are on the African Plate. Saudi Arabia, Jordan, and Syria are on the Arabian Plate. The rift that began before 20 million years in the South, opened here 5-6 million years ago. The plates continue to move even today. About a million years later, about 4 million years ago, the Pliocene period, the water rises, this is an interglacial period. The waters of the Mediterranean Sea flow through the northern valleys (Jezreel Valley and Beit Shean Valley) and flood the valley. A lagoon is formed, the small part of which is connected to the Great Sea. It is called the Sodom Lagoon. It extends from Sodom to a point south of today's Sea of Galilee.

The water is salty seawater. The hydrological balance depends on the amount of precipitation versus evaporation. When evaporation is higher than the amount of water that enters, the salinity increases. As the concentration of minerals in the lagoon increases, mainly the salt settles in it.

At this stage, the Sodom Lagoon is still connected to the Great Sea. This rock crystallizes into salt, the halite rock, and above it other components also settle. Clastic sediments transported from the surrounding mountains with gypsum, clay and marl materials.

Clay is a rock that is formed from small grains, 0.004 mm. Silica, Alumina.  
 (Clay is also used to define grain size.)

Chemical sedimentary rocks, marl and aragonite. Marl is a sedimentary rock, which absorbs water, a mixture of clay with sedimentary limestone. There is a chemical interaction that produces marl from them. Metamorphosis of limestone and limestone, this is aragonite.



**A side view of the cliff at the side of ascent**



**Caverns & Caves throughout Mount Sodom**



**Layer of Organic Remains Compressed**



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Evaporate rocks are mainly gypsum and salt, a mixture of calcium and sulfur. Gypsum is formed in lagoons and lakes, or also in deserts. And salt, is also a result of evaporation. Over the course of a million years, a layer of about 2 km of salt is formed as a result of evaporation, covered with a shell, which we talked about earlier. This salt rock was formed at the bottom of the sea. Another million years passed, 3 million years ago, the Sodom Lagoon separated from the sea, and it was a closed lake, which would be called Lake Gomorrah. It existed for almost 3 million years.

There were climate changes here, the hydrological balance changed, and since it is a terminal lake (not connected to a large sea) it shrank and expanded according to the hydrological balance. During periods when the sea was full, fresh water entered that was in the upper layer. During intermediate periods, there are layers between fresh and salty, and during periods of negative balance the water is saltier and the water level is shallower, in each period different minerals will settle. As the water level rises, deep aragonite, middle gypsum, shallow marl. Thus another 5 km were added. So there is a total of 7 km. 70,000 years ago, the last ice age, the area became a temperate area with a lot of rain, until 16,000 years ago. In these years, a deep lake receives a lot more water, which receives many additional layers, less salt. It becomes more sweet, the lake begins in Qesba, and ends in Korazim, north of the Sea of Galilee. It is sweet enough for animals to live. In these years, marl, gypsum, and clay will settle in it. The formation of Lake Halashon, this is how the Amiaz ox was formed. 16,000 years ago, the ice age ends. The climate is mild, and the lake shrinks until it reached its size 90 years ago. It started south of Jericho to Sodom. In 1930, Pinchas Rotenberg arrived and established a power station in Naharayim, created a dam in Degania. The main source of water for the Dead Sea was blocked. In the same year, Moshe Novomeysky established the Dead Sea Works. First in the north of the Dead Sea, and in 1948 in its current location. And then the Jordanians, decades later, did the same thing. They blocked the water that came from the Jordan River for the benefit of their residents, and so there is no water entering the Dead Sea. The Syrians also diverted the Yarmouk for the benefit of the Haror.

There is a drop in the water level of 1.2 meters every year, in another 130 years, the size of the sea will reach a third of its current size

And then it will reach equilibrium. At the bottom of the Dead Sea is 7 km of salt, and above it are more layers. Salt rock under great pressure changes its physical state, and becomes pasty, its specific gravity is lighter than the layers above it. On the sides of the rift there are secondary fractures, cracks. The salt seeks its way up and escapes through these cracks like a mushroom. The Mount Sodom is the head of the mushroom. This mushroom has a stem. The Mount Sodom grows 2-3 cm every year, but there is weathering from above that mows it down from above. The Mount Sodom is a salt diapir topped by cover rocks.

?

The Kaftor Lookout offers a spectacular view of the rift, the Dead Sea pools and the Moab Mountains, from which there is a good view of the Zard Stream on the Jordanian side. The Zard Stream, Wadi al Hasa in Arabic, is the border between the Moab Mountains and the Edom Mountains that reach as far as Eilat.

?

A green patch, fresh water at the source of the stream, where the village of Gawr as-Safi is located. 50,000 dunams of agricultural cultivation.

In the 1930s, Eliezer Lipa Soknik found the remains of a Jewish synagogue there.

We know that there is a town called Zoar(Bela), in the East Bank, a town according to Deuteronomy chapter 34 verse 3. There is described Moses' ascent to Mount Nebo, which is located north of us across the Jordan. In this chapter the promise of giving the Land of Israel to the Jewish people appears again.

Woe to Moses from the plains of Moab to Mount Nebo, the top of Pisgah, which is opposite Jerahmeel, and the Lord saw all the land, Gilead as far as Dan. He came to all Naphtali and the land of Ephraim and Manasseh. And all the land of Judah until the latter day, from the valley of the Negev and the valley of the Canaanites, from the city of palm trees to Zoar, says the LORD, "This is the land that I swore to Abraham and Isaac and to Jacob, saying, 'To your descendants I will give it. I have seen you with my own eyes, and from there you will not see it.'" Transit.

(The Last Sea, the Mediterranean Sea. (Eliezer Suknik identifies A-Sefi as the biblical Zoar.

Additional references to Zoar exist in the Book of Genesis, the boundary of Lot's living area after he separated from Abraham. In Genesis, the king of Zoar is one of the five rebel kings, King of Elam, head of the alliance of the four kings. After the destruction of Sodom, Lot fled to Zoar, which was not destroyed with the other cities of the square, Sodom, Gomorrah, Admah, and Zeboiim. Zoar is also mentioned in the documents of Babta, daughter of Shimon, from the time of the Bar Kokhba revolt, where it is mentioned as a large Jewish city. The documents were discovered in the Cave of Letters in Nahal Hever. There is a question as to whether this identification is correct, because Abraham and Lot separate according to the biblical story at the identified place north of the Dead Sea.

Near the descent from the button there is a blue trail junction with a red trail, the red trail goes south and reaches a black trail where we can turn left and go down the ladder trail, we continue on the blue trail for the fish. Downhill you see on both sides of the descending trail curved layers because of the salt that pushes the horizontal layers and penetrates from below. The fungus began 40,000 years ago and continues to grow.

Further downhill on the right are salt walls that form a chimney, with the water that melts from the chimney, looking for a gap towards the Dead Sea. This is the Sodom Cave, other caves in Bar Sodom are the Colonel's Cave, and the Malham Cave named after the Israel Center for Cave Research. There are restrictions on hiking in the caves, some of which can be done with the accompaniment of a certified guide.



**Mt. Sodom consists of ~ a billion tones of pure salt**



**Formation in Mount Sodom Shaped by Changes in Climate, Erosion, and Rainfall**



**Some interesting gypsum formations seen by Lior**



**Sodom & Gomorrah reproduction by John Martin**



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## 9. Lot's Wife

The Fish Trail ends at the intersection with Highway #90, turn south a few hundred meters and arrive near the entrance to the Sodom Cave. There is a good lookout for a rock formation that has been nicknamed Lot's Wife. This is the place to tell the biblical story of Lot fleeing the city of Sodom and being commanded by two angels to flee but do not look back. And of course, Lot's wife looked back as any other stupid woman would do, and she became a pillar of salt. This is another biblical story to the story of the Garden of Eden that presents the woman's curiosity as a flaw.

Genesis 19:1-11: And he said unto them, My Lord, let thy servant find grace in thy sight, and magnify thy mercy, which thou hast shewed unto me, to save my soul alive. And I am not able to go to the mountain, lest evil overtake me and I die. This city is too near to flee there, and it is a cause of sorrow for me to flee there. Is it not a cause of sorrow for me, and my soul will live? And Rebbeccaoui said to him, Behold, I have spoken to you also concerning this matter, lest I die. The city of which you have spoken, I have taken it as a matter of urgency, because I was not able to do anything until you came there. Therefore the name of the city was called Zoar. As Geshem went out to the land and was destroyed in Zoar, so the LORD rained on Sodom and on Gomorrah brimstone and ash from the LORD. From heaven, he overthrew the cities of the earth, and all the fields, and all the inhabitants of the cities, and the fruit of the earth. He turned his wife behind him, and she became a pillar of salt.

## 10. Fr. Moshe Abramovitch Novomeysky & The Dead Sea Works Visitor Center

The Dead Sea Works Visitor Center is located near at the foot of Mount Sodom, on a place where the Sodom Dead Sea Potash Factory and Sodom Worker's Campus were located. The Palestine Potash Factory was one of the two factories, which have been founded by Jewish entrepreneurs, by Fr. Moshe Abramovitch Novomeysky – a Russian mining engineer, and with the help of British engineer, in 1934. The factory was created in order to extend different minerals extracting from The Dead Sea through evaporation ponds in shallow waters. The factory has housed its workers and some of their families as well. Some 300 people lived on the Sodom Worker's Campus, including 40 women and 20 children in 1940, until the Revivim Kibbutz was founded in 1943. As of 2020, a part of the factory has been restored, and is presented as the Dead Sea Works Visitor Center.

Fr. Moshe Novomeysky won the concession on employment terms as of 50%-50% Jews and Arabic workers. There were two camps of Arabic workers 4 km from the factory on South – a small camp called as Khalil workers from Hebron lived. And a larger camp, and where workers from all over Middle East (Palestine, Egypt, Saudi Arabia) lived. A Jewish camp was located West of the ladders on the Dead Sea. Near the ladder we can see a huge pipe stuck in the mountain, this was the water tank that was used to keep and provide water to the camp. The water was brought up to the tank with pumps, and descended to the camp by gravity. The Moab Mountains and beginning of the Red (Adom) Mountains are located to the East of the camp. The meeting point between the western Zard River and the Arab Wadi Hasa, where an Arab settlement of Safi was located, from which they brought fresh water by pipe and also for vegetables, there are no fresh springs in the area, only salty ones. There is fresh water in Ein Bokek, which is located to the North of the camp.

All the huts in the Visitor Center are reconstructions of those that were there actually, but not exactly in the same place. The barracks were originally adjacent to the mountain. There was no road. The entrance and exit from the camp were by boat from the Lido junction, which is in the northern part of the Dead Sea near Kalya. Two buildings remain from that period. The three-story building of the security house. Another building is the dining room, a stone building built in 1942 after the dining room barracks burned down. In the Jewish camp, there were 400, 450 people, including Arabs. A total of about a thousand people. It was mainly a production plant for the production of materials. The laboratories and chemists and development were in the northern plant. Fr. Novomisky was a mining engineer from Russia. He has invented the method for extracting minerals from the Dead Sea. The method is the similar to what is done today.

There were two main groups in the Jewish camp, one was the members of the Kibbutz movement, the first of which included 150 workers from the Labor Battalion led by Yehuda Kopilewicz (later changed its name to Almog, served as head of the Tamar Regional Council and the settlement of Almog was named after him). They came because of the ideology of the occupation of labor. And the second group were professionals with specialties. The conditions of working were very hard, there were no air conditioners. The people worked for three days a month(?) and received a week of rest.

Fr. Moshe Novomisky was an English gold and salt mine owner in the Lake Baikal area In 1911. He arrives on the Dead Sea, the Jewish-German Zionist leader, botanist Otto Warburg, reveals to him the findings of a German geologist who had explored the Dead Sea on behalf of the Turkish Sultan. The findings tempted Novomisky to come to the Dead Sea in the hope of finding naphtha – a mineral oil, since the German report seemed him too good. Fr. Moshe Novomisky checked and verified the findings, but World War I interrupted his activity. And he returned to Palestine only in 1920. He established the Land of Mining Syndicate, and he was assisted by his deputy Moshe Langotsky since 1925. Mr. Moshe Langotsky lived on the northern shore of the Dead Sea for two and a half years, and he conducted surveys and experiments to extract minerals according to Novomeysky's instructions.

Mr. Yossi Langotsky is a son by Mr. Langotsky. He is a geologist, who initiated the Tamar and Dalit gas drillings. In those years, they did not know how to extract minerals from water. And Novomeysky's idea was to create several pools and circulate the water from pool to pool every ten days. In the first pool, the salt sinks, in the next pool, the potassium and bromine. Fr. Navomiysky, together with a British partner, succeeded in obtaining a concession from the British government after 10 years in late 1929, to establish a plant for mining potassium and bromine in all areas of the Dead Sea.



**Sodom & Gomorrah reproduction**



**"Lot's Wife" pillar of salt, Mount Sodom**



**The Dead Sea Plant in 1930's**



**Moshe Novomeysky Dead Sea Works Visitor Center**



**The Dead Sea Works Visitor Center, an western view**



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Then Fr. Navomiysky built the first factory in the Jordan River estuary in the north. The explosive potash produced with addition of the bromine, was an additive to aviation fuel in 1931. At the end of 1933, the factory has reached its peak output, utilizing 8,000 dunams of pounds, and could not expand. They were forced to move down to Sodom in the southern basin of the Dead Sea because of market demands. In 1934, the camp was built, the factory was established about 5 kilometers south. The southern factory began operating in 1935, the material was transported by boats to the northern Dead Sea Works, and from there by trucks to Jerusalem and from there by train. In the War of Liberation, the northern factory passed into the hands of the Jordanians and was destroyed, and the southern factory continued to operate, it was renovated in 1952, and it was privatized in 1992.

The Dead Sea Works Visitor Center is a good attraction and interesting historical place, containing some things and reconstructions of that time and those grandiose undertaking of Fr. Novomeysky, his associates, and of ordinary people who worked very hard on the Dead Sea Works making the bright ideas and dreams become true. A few cinematic diorama and a 3D films illustrate the history of the Dead Sea Works, beginning from the formation of The Dead Sea itself, and ending by the modern Dead Sea Works managed by ICL Group.



**Fr. Novomeysky Moshe (25.11.1873-27.03.1961)**



**Workers at the Dead Sea Potash Works**



#### Guiding Methodological notes:

*When traveling south on Highway 90, there is a white stripe in front of the entrance to the visitor center. Therefore, continue south and find a place to turn around. With a bus, you can turn around to the red-marked road near the Dead Sea factories. The visitor center is open seven days a week. Regular tours are at 10 a.m., 12 p.m., and 2 p.m. It is possible to reserve a special time for a group by appointment. At the entrance to the complex there is a small kiosk and restrooms. Next to the kiosk are tables with a seating area for up to 50 people. The tour lasts about an hour and a half and includes a short opening lecture, a transition between several buildings with audiovisual equipment, films, including a film with 3D glasses that explain the history of the place and the process of mineral mining.*

#### **11. Overview of The Modern Dead Sea Works**

The Dead Sea Works produce bromine, potash, and magnesium nova days.

The Bromine is a very reactive and toxic chemical element - Br, with atomic weight 35, the third halogen being nonmetal in the Periodic Table by Mendileev – a volatile liquid, which does not occurs as a free element. The Bromine is a rare earth element in comparison with Chlorine. And the main source of the Bromine is the Dead Sea in Israel and Jordan. The bromine industry is about one-hundredth the size of chlorine industry. The Bromine (Br) and Hydrogen Bromine (HBr) are used in flame retardants (so that, for example, lithium batteries from laptops do not catch fire), in making brominated polymers and plastics, in polymerization processes, Silver Bromide is used as a light sensitive constituent of photographic emulsions, Ethylene Bromide was an additive in gasolines, in pharmacology (especially Potassium Bromide), as antiseptic in applications as swimming pools similarly to Chlorine.

The potash is a compound, a mix of various salts that contain potassium (K- Kalium (19)) in water soluble form, and which is a source deriving the potassium from potash. As well the potash is widely used as fertilizer. The potash compound is 80 times more concentrated than in regular sea water.

The Magnesium is chemical element - Mg, with atomic weight 12 - a very light metal having a low density, low melting point and high chemical reactivity, so that MG occurs naturally only in combination with other elements. Mg is the third-most-commonly-used structural metal, following iron and aluminum. Magnesium is used as an automotive and aerospace construction metals, as well as in Electronic industries. Magnesium is a perfect source of light (former photographic lights, fireworks, marine flares), it is flammable metal. Also MG is used as a chemical reagent in organic synthesis.

#### **12. Overview The South Dead Sea going up to observation point above the factory Aryeh Shahr**

The southern yellow factory for producing magnesium. Further north is Potash Factory A plus Factory B, which create potash from potassium (If not vise versa?). Factory A dates from 1952. North of Factory B is the northern bromine production factory. The northern most is Potash Factory C. Inside, an independent power plant, fleets of buses for security purposes to divert workers if there is a leak. The least profitable magnesium plant, but it may have a future.

We see white piles of potash for cooking. The red piles, that is also potassium, but they are painted red for the Chinese, because they are used red potassium. Before that, the Chinese purchased potassium that came from mines rich in oxides that colored the potassium red. The plants produce 4 million tonnes of potash a year.

The Israel Chemicals Company has a concession until 2030. The resource is a national natural resource and the company pays very little in royalties to Israel. In 2030, at the end of the concession, there will be a new tender. ICL's lobbyists are already trying to renew the concession, the more important thing is what the terms of the concession will be. We, the citizens of the country, could have earned much more.

The first mineral formed was salt, in the pool number five. Then the water is transferred to other pools and during sedimentation the carnallite crystallizes. From this the potash and magnesium are extracted. Solar energy does the main work. The formation of salt is problematic. The salt that sinks raises the salt of the pool by 10 centimeters every year. Until 10 years ago, they built dikes to prevent flooding. In recent years, the rock has been scraped and the salt has been harvested. There was a legal process over who should finance the removal of the salt, the State of Israel or ICL. The verdict was - the Dead Sea Works should do it. The islands we saw from Mount Sodom are mountains of salt that were removed from the bottom of the pools.



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### 13. Potassium Chloride Common Production

Potassium (K) fertilizers are commonly used to overcome plant deficiencies. Where soils cannot supply the amount of K required by crops, farmers must supplement this essential plant nutrient. Potash is a general term used to describe a variety of K-containing agricultural fertilizers. Potassium Chloride (KCl), the most commonly used source, is also frequently referred to as Muriate of Potash, or MOP (muriate is the old name for any chloride-containing salt).

Potassium is always present in minerals as a single-charged cation ( $K^+$ ).

#### 13.1. Production

Property:	KCl
Fertilizer Analysis	0-0-60
K Content	50% Approx
Water Solubility (20°C)	344 g/L
Solution pH	7 Aprprox.

#### Chemical Properties - Potassium Chloride

Deeply buried potash deposits exist throughout the world. The dominant mineral is sylvite mixed with halite (Sodium Chloride), which forms a mixed mineral called sylvinite. Most K minerals are harvested from ancient marine deposits deep beneath the Earth's surface. They are then transported to a processing facility where the ore is crushed and the K salts are separated from the sodium salts.

The color of KCl can vary from red to white, depending on the source of the sylvinite ore. The reddish tint comes from trace amounts of iron oxide. There are no agronomic differences between the red and white forms of KCl.

Some KCl is produced by injecting hot water deep into the ground to dissolve the soluble sylvite mineral and then pumping the brine back to the surface, where the water evaporates. Solar evaporation is used to recover valuable potash salts from brine water in Utah's Dead Sea and Great Salt Lake, for example.

#### 13.2. Agricultural use

Potassium chloride is the most widely applied K fertilizer because of its relatively low cost and because it includes more K than most other sources: 50-52% of K, (60-63% of  $K_2O$ ) and 45-47% of  $Cl^-$ .

More than 90% of global potash production goes into plant nutrition. Farmers spread KCL onto the soil surface prior to tillage and planting. It may also be applied in a concentrated band near the seed. Since dissolving fertilizer will increase the soluble salt concentration, banded KCl is placed to the side of the seed to avoid damaging the germinating plant.

Potassium chloride rapidly dissolves in soil water. The  $K^+$  will be retained on the negatively charged cation exchange sites of clay and organic matter. The  $Cl^-$  portion will readily move with the water. An especially pure grade of KCl can be dissolved for fluid fertilizers or applied through irrigation systems.

#### 13.3. Management practices

Potassium chloride is primarily used as a source of K nutrition. However, there are regions where plants respond favorably to application of  $Cl^-$ . Potassium chloride is usually the preferred material to meet this need. There are no significant impacts on water or air associated with normal application rates of KCl. Elevated salt concentrations surrounding the dissolving fertilizer may be the most important factor to consider.

#### 13.3. Non-agricultural use

Potassium is essential for human and animal health.

Potassium chloride can be used as a salt substitute for individuals on a restricted salt (Sodium Chloride) diet. It is used as a deicing agent and has a fertilizing value after the ice melts. It is also used in water softeners to replace calcium in water.



KCl is found in various shades and particle sizes

<https://www.cropnutrition.com/resource-library/potassium-chloride/>

Source: Nutrient Source Specifics (No. 3), International Plant Nutrition Institute.



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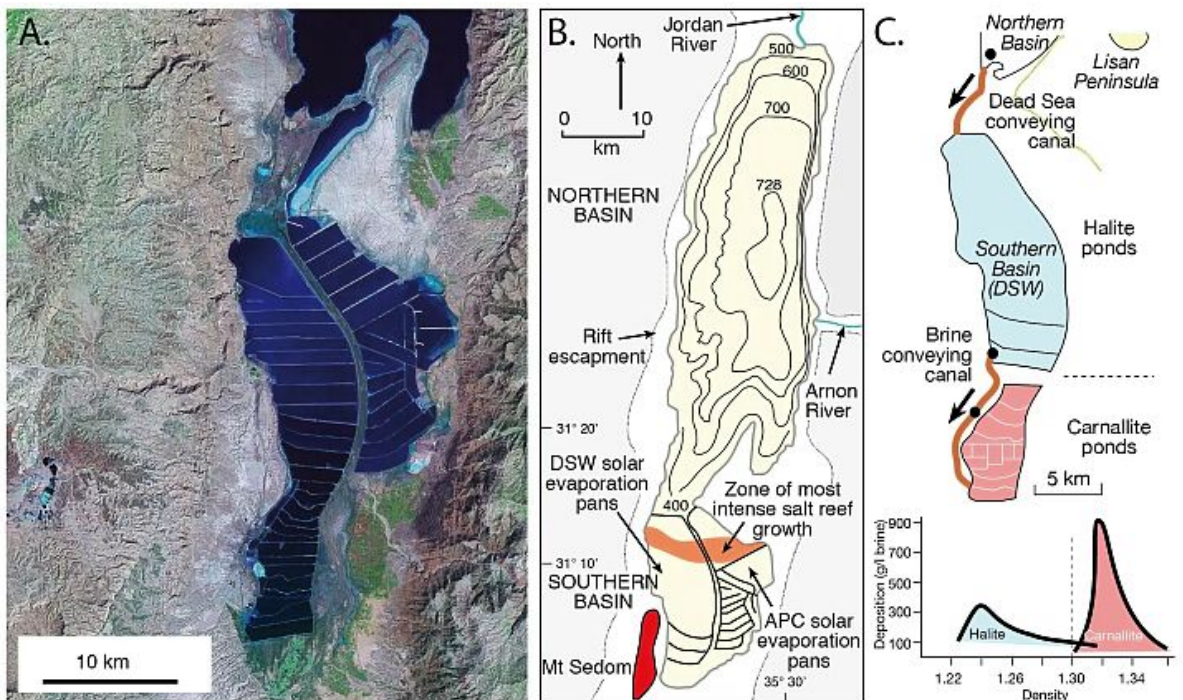
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#### 14. Potassium Chloride Production at The Dead Sea



Dead Sea Salt Reef

## The Dead Sea Works Potash Production



A. Evaporation pans at the southern end of the Dead Sea (NASA 2000).

B. The water surface in the Dead Sea is around 417m below the Sea Level. The Southern Basin (evaluation more than -491m msl) is covered only by a thin controlled brine sheet up to 2 m deep in a series of concentrator pans maintained by pumping of brines from the Northern Basin, where waters attain depths of more than 300 m, seafloor isobaths are in meters below the Sea Level.

C. Design of sequential evaporation pans at the DSW Sodom plant, Southern Basin of the Dead Sea. Color coded to indicate the relationship between increasing concentration (density) and the transition from halite to carnallite precipitation points, and the associated brine densities.



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# Dead Sea Carnallite Ponds, Southend Basin

A. Ongoing evaporations lowering the pan water level and so exposing a recently crystallized clear carnallite fringe the white halite rim.



B. Submarine upward-aligned carnallite crystals now exposed in a desiccated pan floor below a halite "reef" rim.





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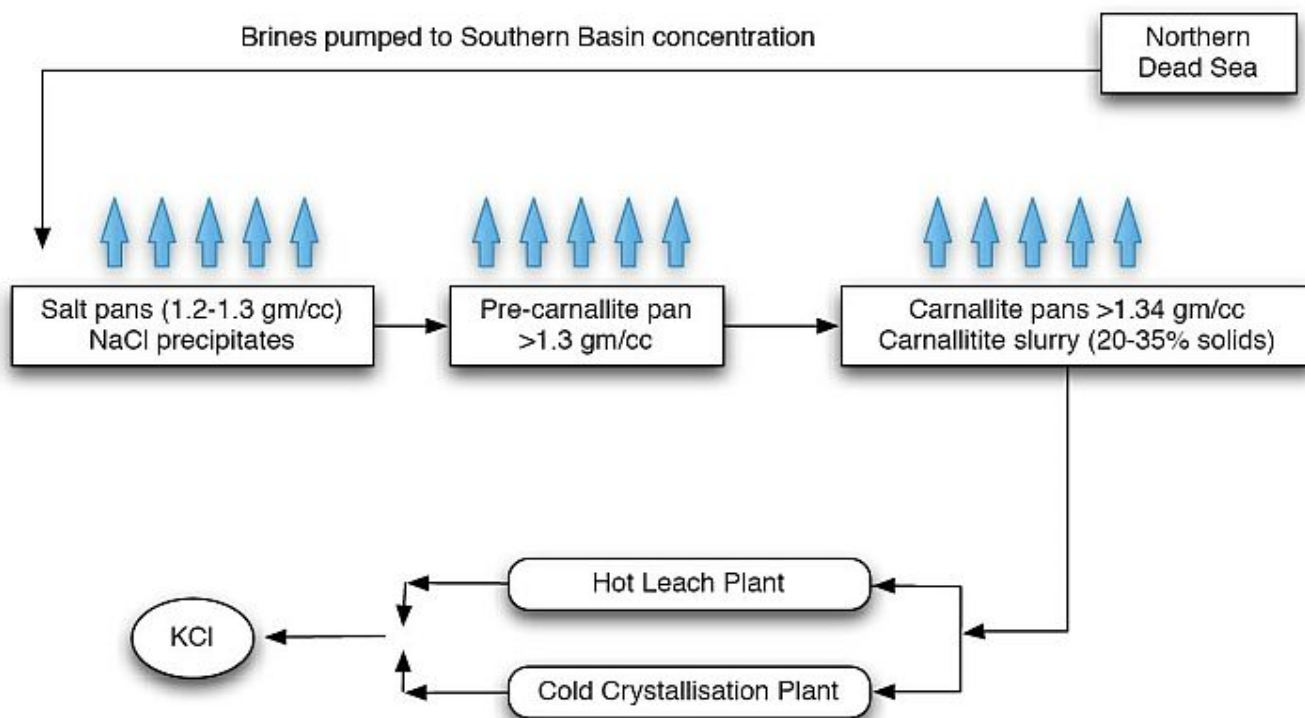
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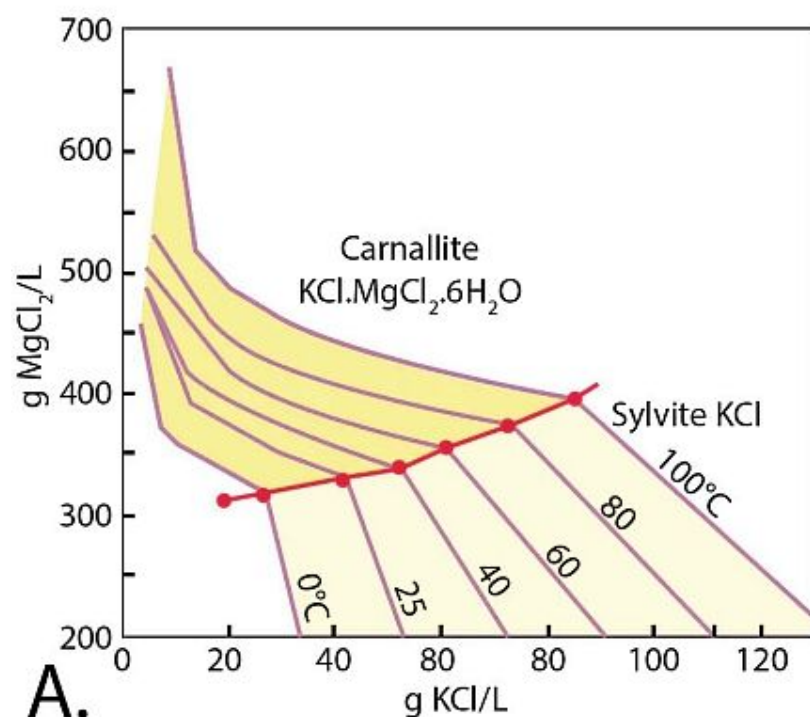
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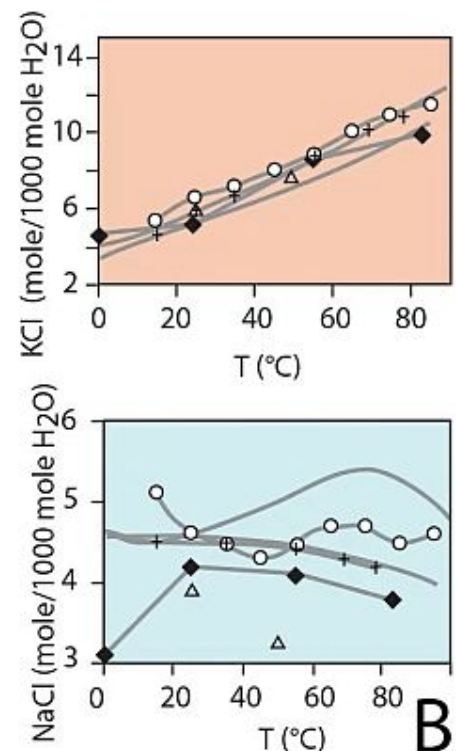


Process stream for MOP/KCl Potassium Chloride manufacture in the Dead Sea brine pans (Blue arrows indicate solar evaporation)



Potash Solution Chemistry

- A. Cold Crystallization based on incongruent dissolution and illustrated by carnallite/sylvite curve in the presence of 3% NaCl.  
B. Hot or thermal crystallization is based on fact that halite solubility does not change greatly with temperature, while KCl solubility trebles over the same range. Different colored symbols indicate different experimental runs.



Source: <https://www.saltworkconsultants.com/quaternary-potash/>



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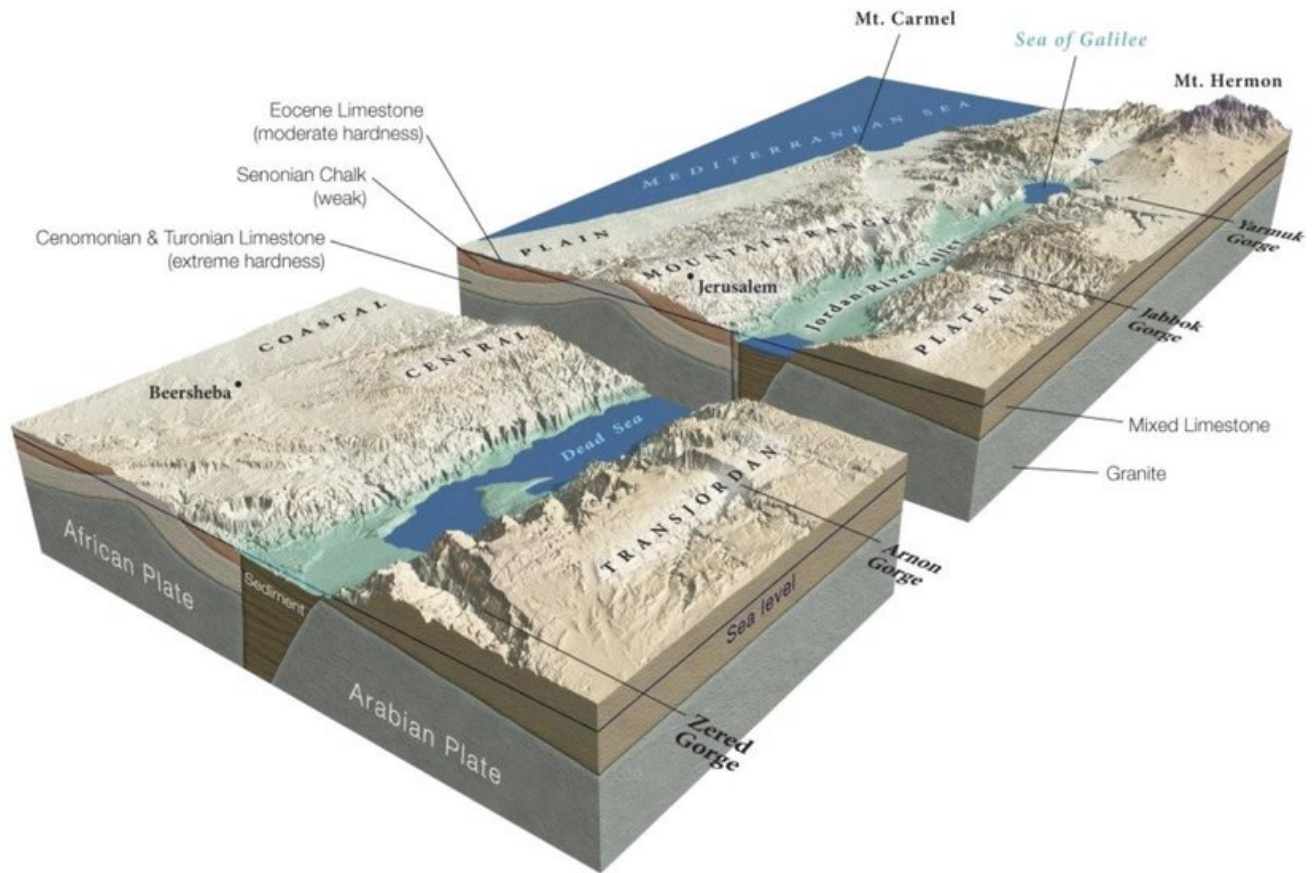
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**Geological cut of the Dead Sea, located in Miocene tectonic depression and resting on a base of granite and basalts on which more recent calcareous sedimentary rocks overlap. The Western bleed fault moves Southward while the eastern transforming fault is loaded North.**

#### References:

1. The Dead Sea Sodom Mount Educational Travel Report in Hebrew by Mr. Dafni Avishay ("He" text parts)
2. The Dead Sea Sodom Mount Educational Travel Report in Hebrew by Mr. Berenzon Alex (Timetable)
3. <https://www.wikipedia.org>
4. <https://www.backpackisrael.com>
5. <https://www.cropnutrition.com/resource-library/potassium-chloride/>
6. <https://www.saltworkconsultants.com/quaternary-potash/>
7. <https://wysinfo.com/dead-sea-geological-structure/>
8. <https://www.daedsea.co.il>

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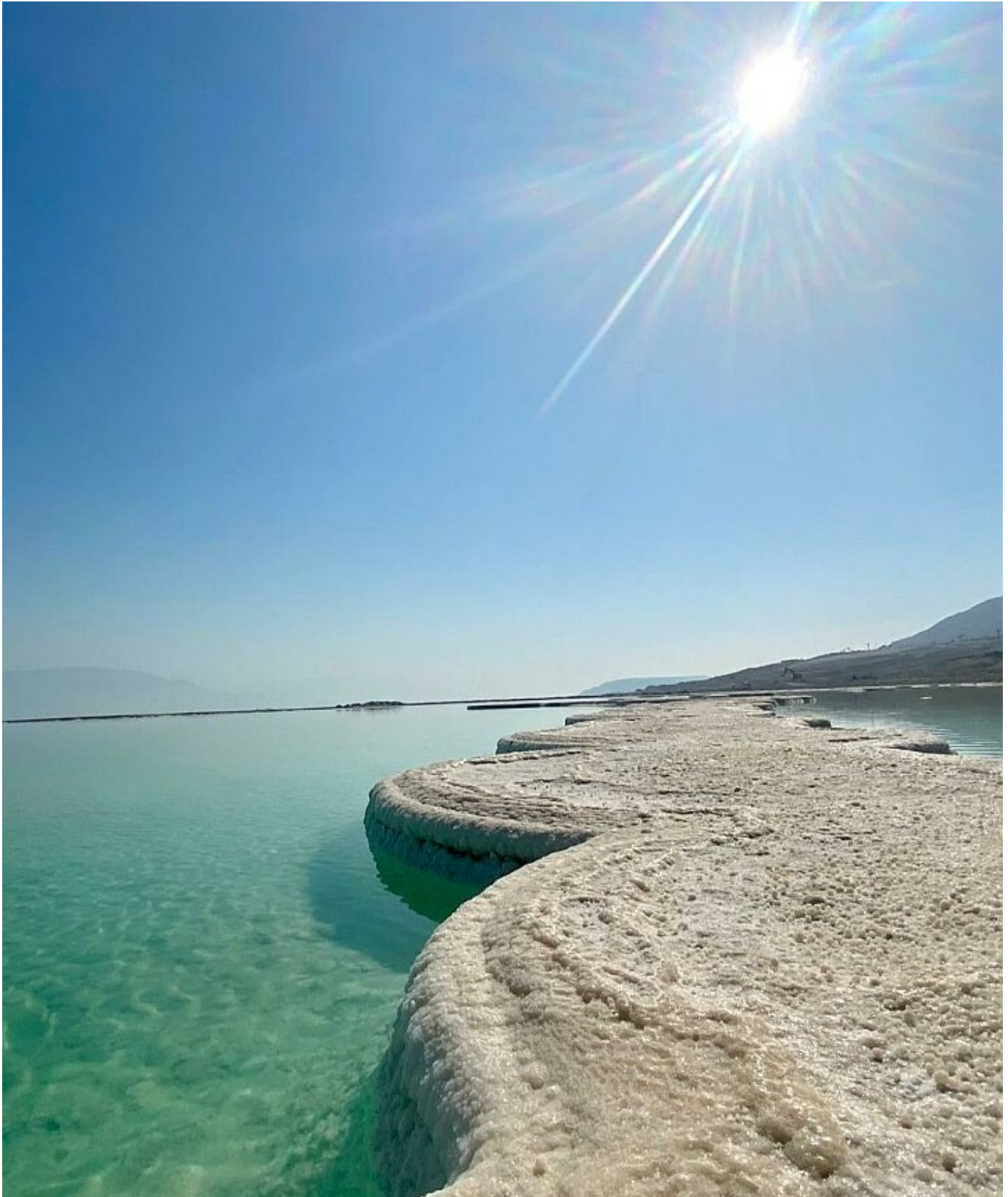
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***The Salt Road***



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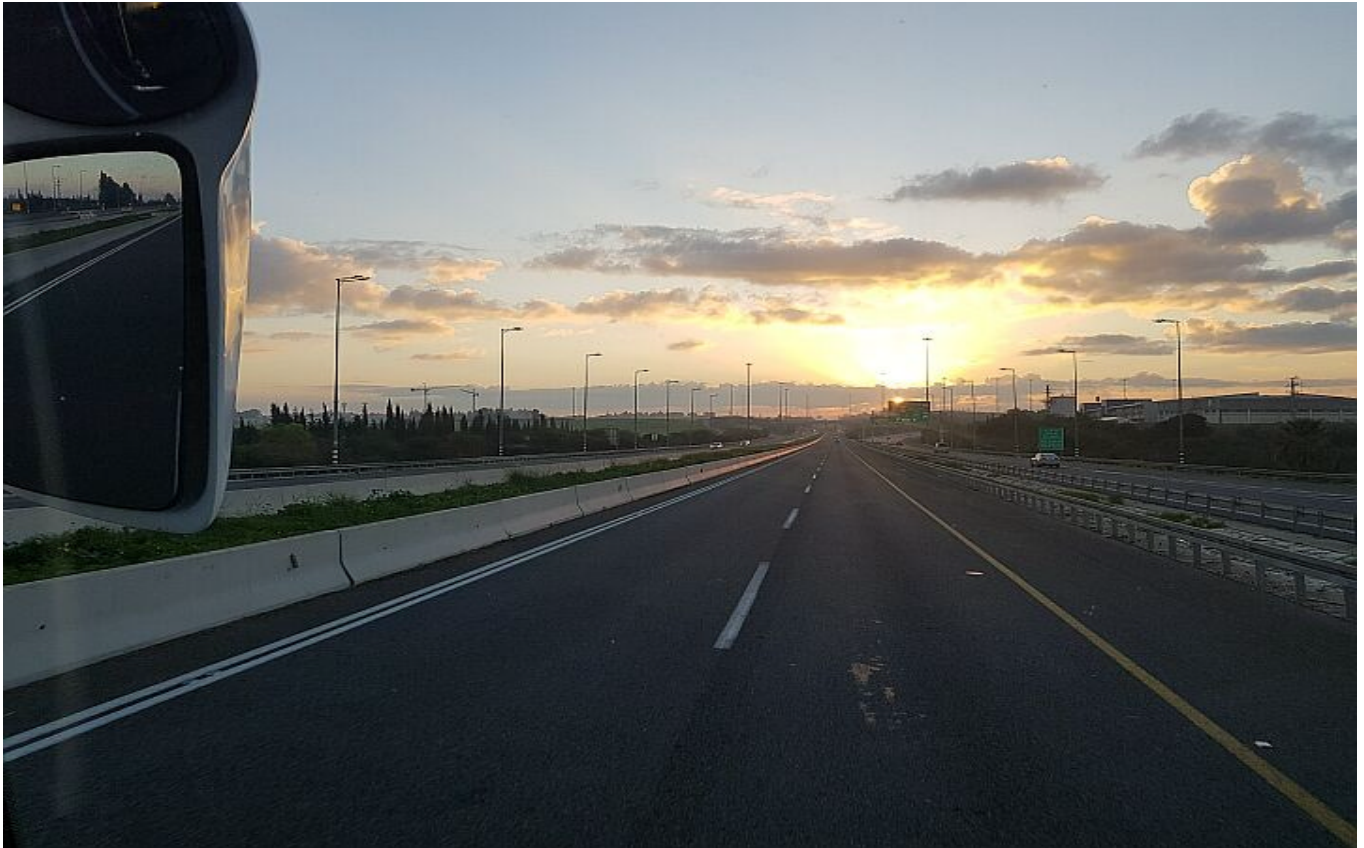
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*The Dreams Rise, somewhere on the Highway #431, on a way to Elta Systems Ashdod via Rehovot. I like my life, even if it is not easy. (05.01.24 06:55:16)*



*Petrusha & Katusha - Wingate's lovely inhabitants do not see me, as Mr. Akiva does not do, that I come here to study the Roads. (14.02.25 @07:20:24)*