

# Course Contents

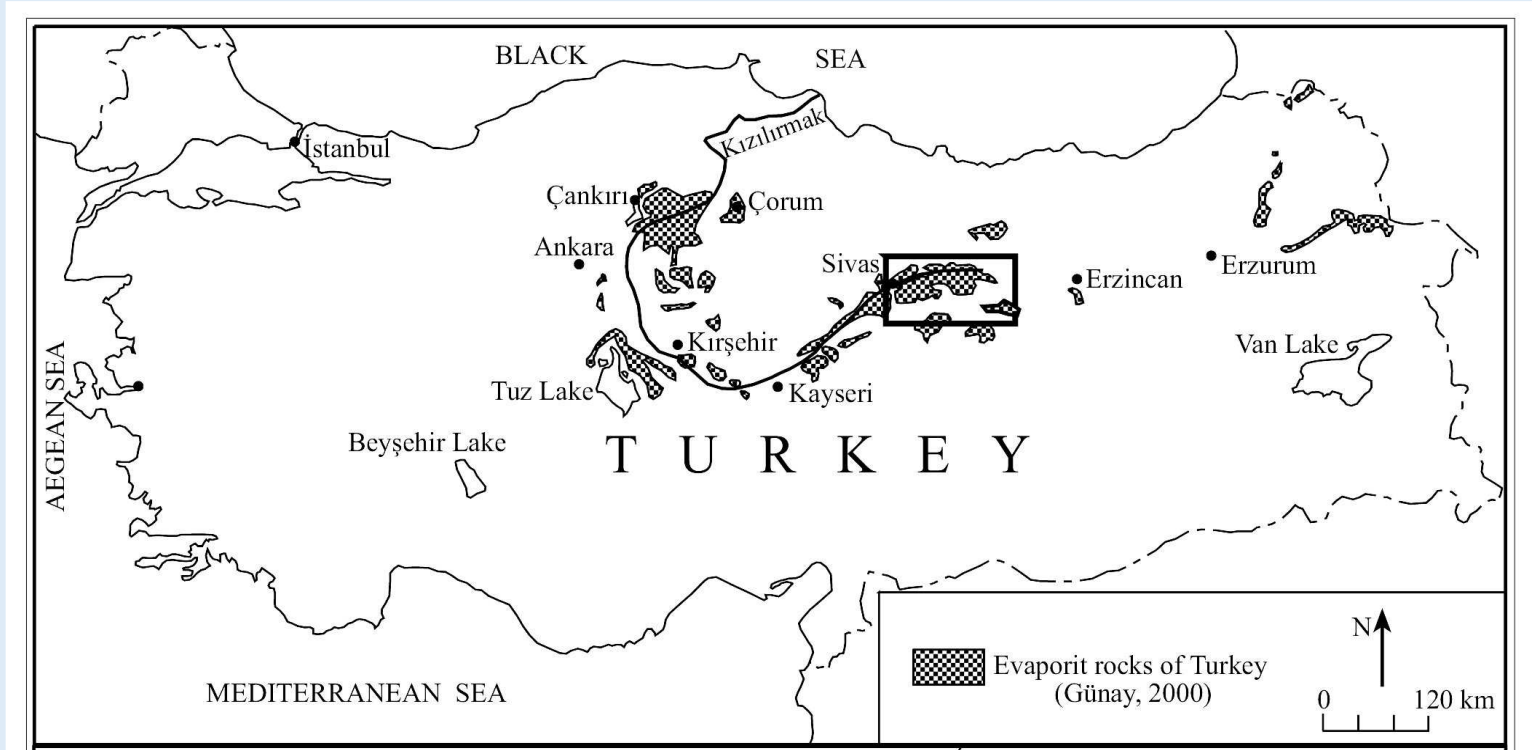
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# READINGS / REFERENCES

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2. Çubuk, Y., İnan, S., 1998. **İmranlı ve Hafik Güneyinde (Sivas) Miyosen Havzası'nın Stratigrafik ve Tektonik Özellikleri**. MTA Dergisi 120, 45-60.
3. Doğan, U., Özel, S., 2005. **Gypsum karst and its evolution east of Hafik (Sivas, Turkey)**. Geomorphology 71 (3-4), 373-388.
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# Gypsum Karst

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Gypsum Karst

Çankırı

Caprock / örtü kayası çökme dolini





# Gypsum Karst

Çankırı

Caprock / örtü kayası çökme dolini





# Gypsum Karst

Çankırı

Solution doline

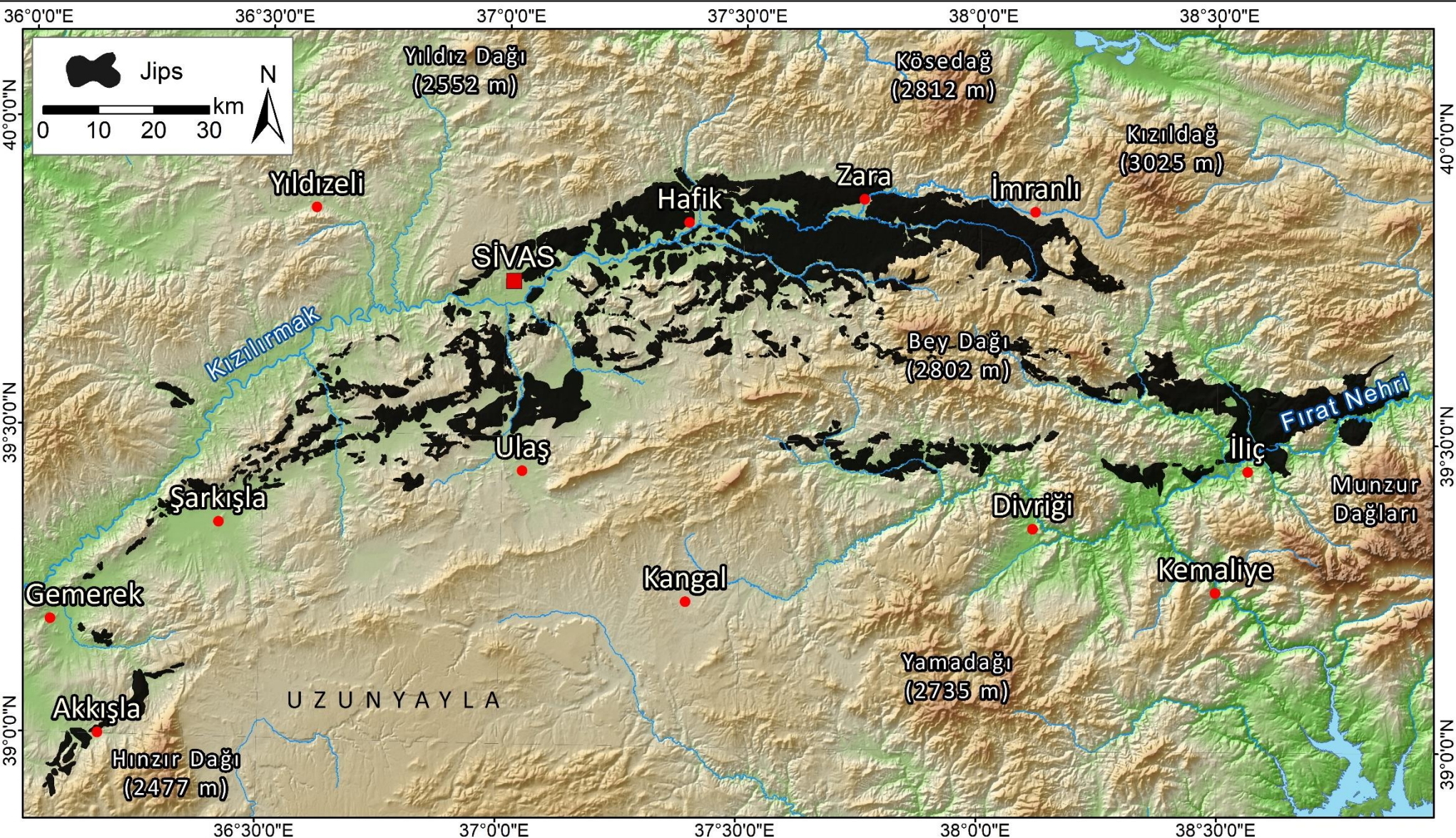




# Gypsum Karst

Gypsum outcrop

## Sivas





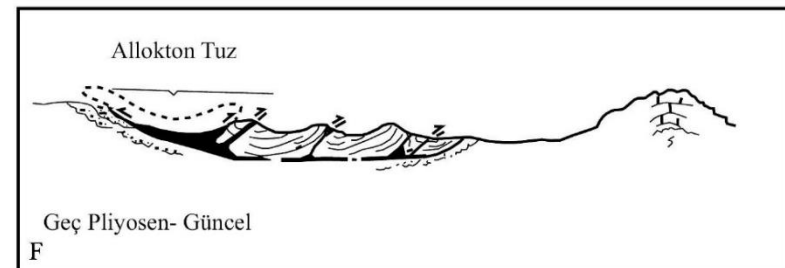
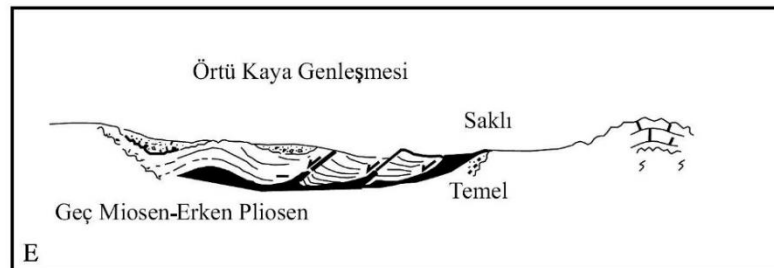
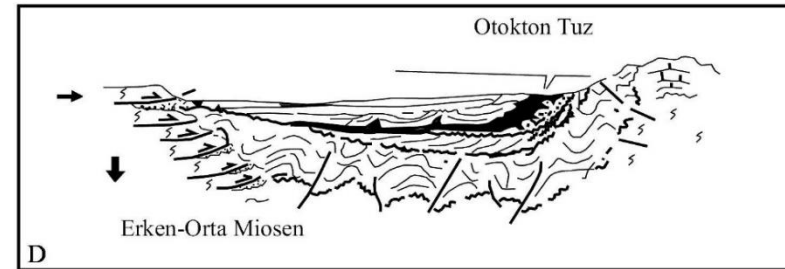
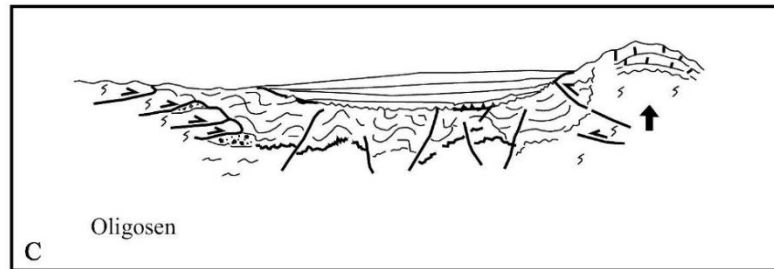
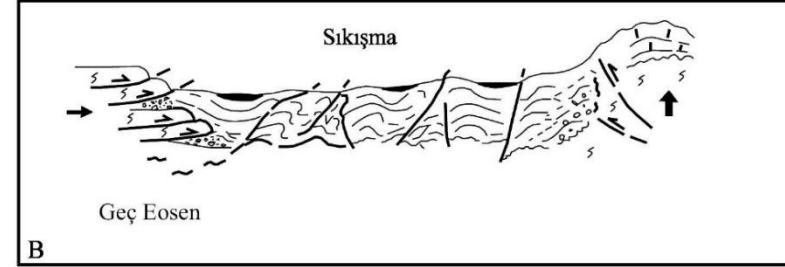
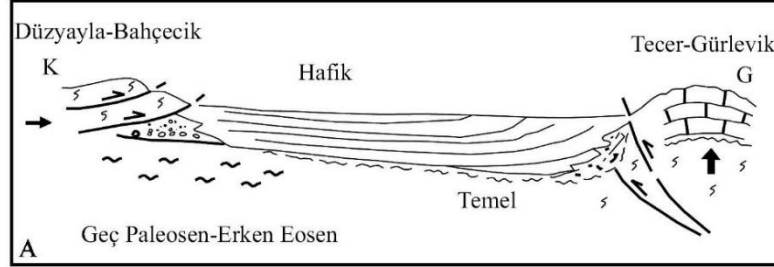
# Gypsum Karst

## Salt tectonic

### Halokinetic processes

Halokinetic is movement and deformation of salt and the associated geological structures due to the flow and mobility of salt over geological time scales. Halokinetic processes are driven by the physical properties of salt, which is less dense and more ductile than surrounding rock, allowing it to flow and deform under pressure.

### SİVAS HAVZASI'NIN TERSİYERDEKİ TEKTONİK EVRİMİ



Üst Miosen Pliosen Çökelleri

Oligosen Çökelleri

Üst Kretase- Paleosen Kireçtaşları

Metamorfik Birimler

Şatıyen- Orta Miosen Çökelleri

Eosen Birimleri

Ofiyolitik Birimler

Ölçeksiz (Çubuk 1994'ten)

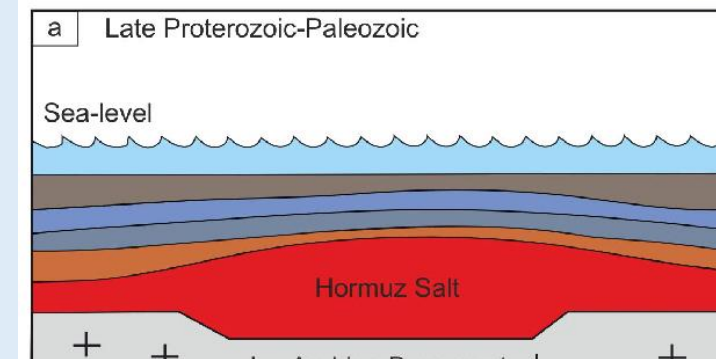
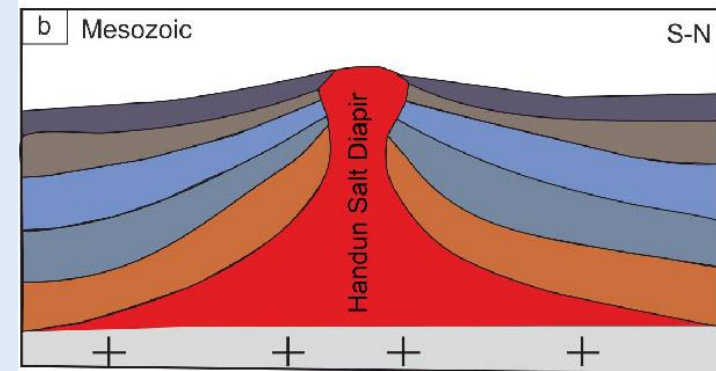
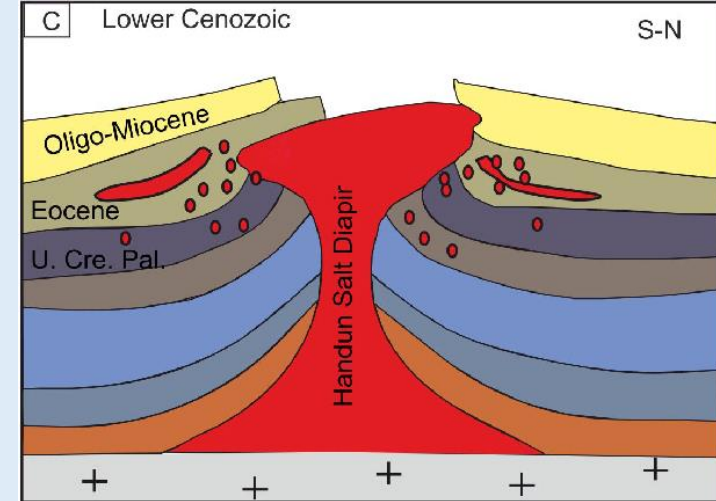
# Gypsum Karst

Salt tectonic

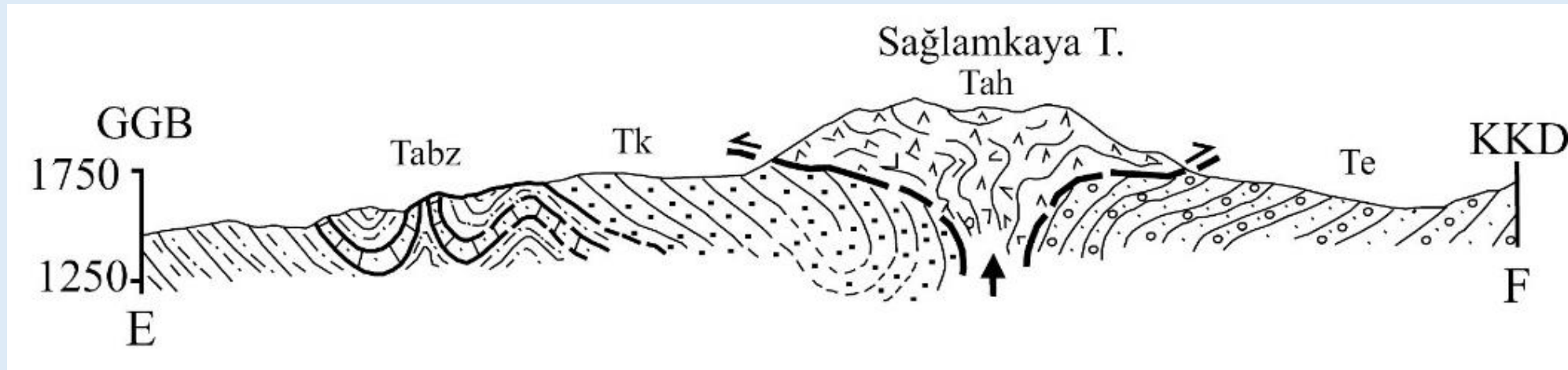
Salt diapir

A salt diapir, or salt dome, is a geological structure formed when a column of salt rises through overlying rock layers. This phenomenon occurs because salt, being less dense and more ductile than the surrounding rock, can flow plastically over geological time. Buried under significant layers of sediment, the salt moves upward through the more rigid overlying rocks due to buoyancy and differential pressure.

The core of a diapir is mainly composed of halite (rock salt) but can also contain other evaporite minerals like gypsum and anhydrite.



<https://www.semanticscholar.org/paper/Halokinetic-sequences-as-indicators-of-Cenozoic-The-Faridi-Rezaee/2947dd473fe179324262068f392de835a2e23176>



Çubuk, Y., İnan, S., 1998. İmranlı ve Hafik Güneyinde (Sivas) Miyosen Havzası'nın Stratigrafik ve Tektonik Özellikleri. MTA Dergisi 120, 45-60.

- Salt can migrate vertically or laterally through the Earth's crust, forming various structures such as salt diapirs, salt walls, and salt sheets.
- As the salt moves, it deforms the surrounding rock layers, creating complex geological features. These deformations can include folding, faulting, and the creation of traps for hydrocarbons.
- Halokinetic processes are primarily driven by buoyancy forces and differential loading. The lower density of salt compared to surrounding sediments causes it to rise, while the weight of overlying sediments can push it through the rock layers.
- Halokinetics significantly influence the structural geology of sedimentary basins. They play a crucial role in the formation of hydrocarbon traps, mineral deposits, and can affect the stability of geological formations.
- Overall, halokinetics encompasses the dynamics and effects of salt movement within the Earth's crust, leading to various geological structures and phenomena.



# Gypsum Karst

## Salt tectonic

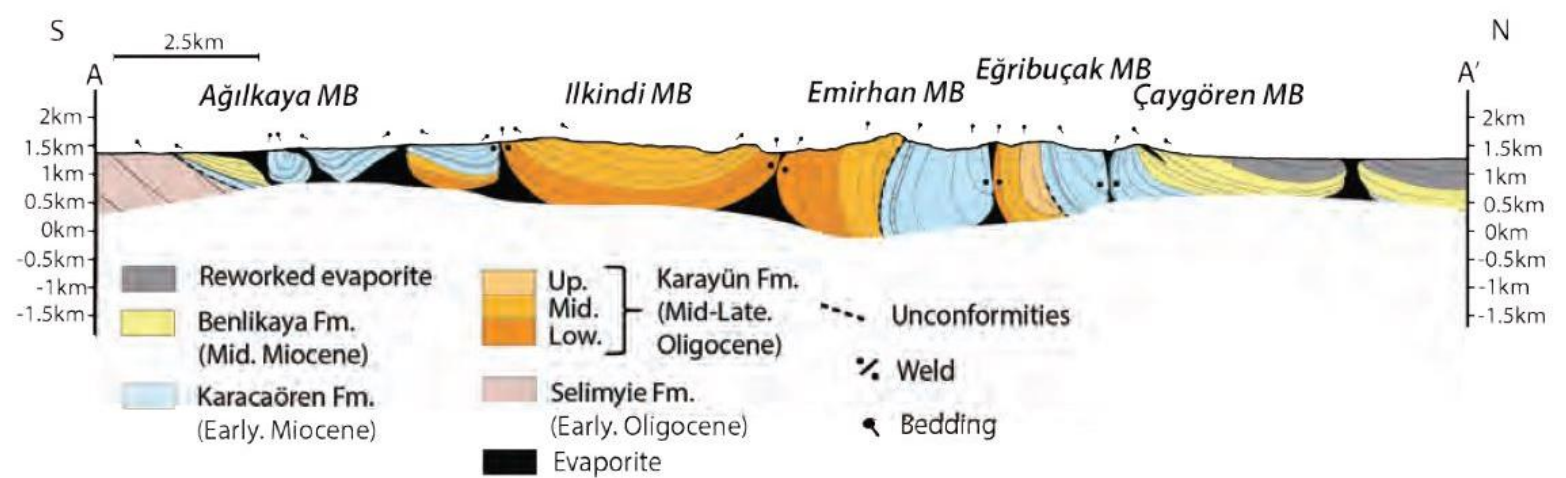


Figure IV.B-5: Schematic South-North cross-section across the WABS domain of the Sivas Basin. The section illustrates the geometry of minibasins, which are well constrained at the surface but poorly constrained at depth. Thus, several possible geometries, thicknesses and basement configurations are developed. Bedding attitudes are indicated by short black dashes and welds by pairs of dots (See Figure IV.B-4 for location).

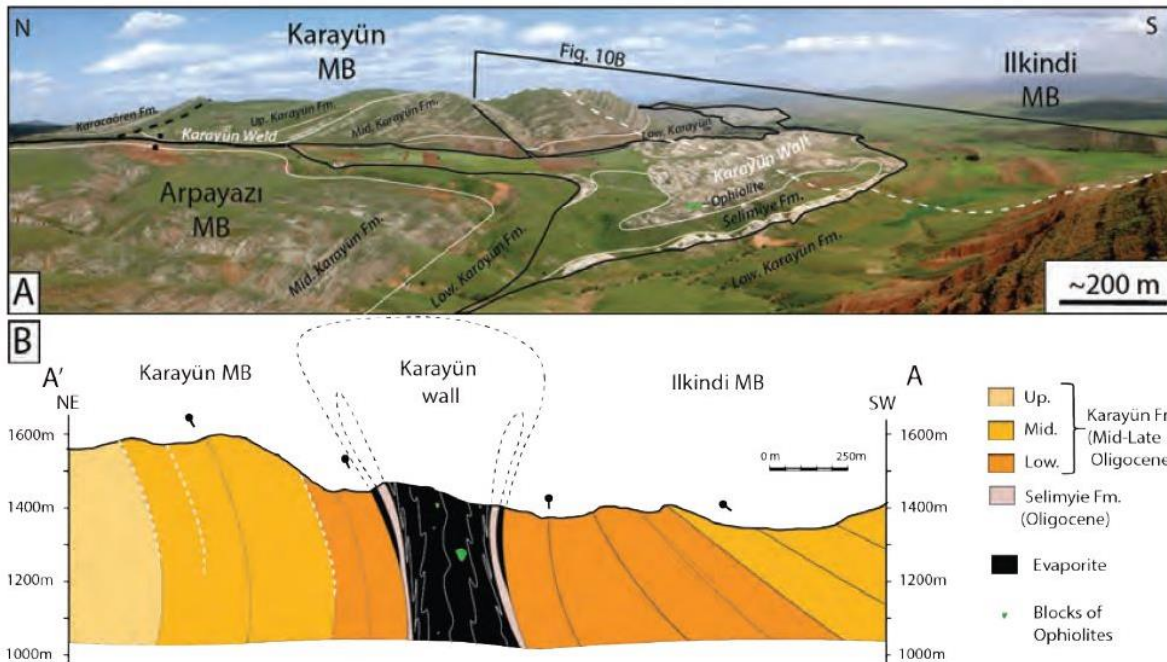


Figure IV.B-10: A) View towards the east of the Karayün salt wall and weld delimiting the İlkindi, Arpayazi and Karayün minibasins, with location of cross section Figure IV.B-10B. B) Cross-section through the Karayün salt wall, between the Karayün and İlkindi minibasins, showing vertical wall with megaclast of ophiolite (see Figure IV.B-8B1 and Figure IV.B-10A for location).

Legeay, et.al. 2018.  
Geology of the  
Central Sivas Basin  
(Turkey). Journal of  
Maps 15, 406-417.



Gypsum Karst

Salt tectonic

Evaporite wall



Gypsum Karst

Salt tectonic

Evaporite wall



Gypsum Karst

Salt tectonic

Evaporite wall





Gypsum Karst

Salt tectonic

Evaporite wall





# Gypsum Karst

Salt tectonic

Evaporite wall



Gypsum Karst

Salt tectonic

Diapir





Gypsum Karst

Salt tectonic

Diapir





# Gypsum Karst

Salt tectonic



# Gypsum Karst

Salt tectonic

Emirhan Kayalıkları





# Gypsum Karst

# Polygonal Karst

























# Gypsum Karst



# Caves















