

The Parting of the Red Sea: A Physical and Theological Perspective

By Alexis Nduwimana (nduwimanalexis@gmail.com)

1. Introduction

The Bible records numerous miracles performed by God throughout both the Old and New Testaments. In many cases, the specific mechanisms or forces involved are not described. The account of the parting of the Red Sea in Exodus 14, however, appears to be an exception. Scripture states that "the Lord caused the sea to go back by a strong east wind" (Exodus 14:21).

As both a physicist and a student of the Bible, I find this statement particularly intriguing. It raises important questions regarding the nature of the force that parted the sea and whether the phenomenon can be explained through known meteorological processes. Did the east wind operate according to natural physical laws, or was the miracle accomplished through a supernatural force beyond scientific explanation? The purpose of this paper is to examine the role of the east wind in the Red Sea crossing and to determine whether the force involved was natural, supernatural, or a combination of both.

2. The Problem with the Direction of the Wind Force

One of the primary scientific difficulties in explaining the miracle solely through the action of an east wind arises from the description found in Exodus 14:22:

"And the children of Israel went into the midst of the sea upon the dry ground: and the waters were a wall unto them on their right hand, and on their left."

This verse indicates that the Israelites passed through a corridor of dry ground with walls of water standing on both sides. From a physical perspective, maintaining two vertical walls of water requires forces that counteract the tendency of water to collapse under gravity. Furthermore, because the walls existed on opposite sides of the Israelites, the forces acting on the water would need to operate in opposite directions (Figure 1).

A strong east wind blowing in a single direction cannot easily account for the existence of two stable walls of water on the left and right sides of the path. Wind can exert pressure on a body of water and can push water away from a particular area, but a unidirectional wind does not naturally create and sustain opposing walls of water. Therefore, the east wind described in Exodus cannot fully explain the configuration of the sea as presented in the biblical narrative.

This observation suggests that the east wind was not the primary force responsible for holding the water in place. Rather, the east wind may have served a secondary role, perhaps helping to remove water from the path ahead of the Israelites. If the Israelites were traveling eastward, the wind could have contributed to pushing water forward and exposing dry ground. However, the

forces required to maintain the water walls on both sides are not explicitly described in the Exodus account. Consequently, the biblical text appears to imply the existence of additional forces beyond those attributable to ordinary wind dynamics. Whether these forces operated through unknown natural mechanisms or through direct divine intervention remains a subject of interpretation.

3. Conclusion

The east wind mentioned in the account of the Red Sea crossing cannot, by itself, adequately explain the presence of walls of water on both the left and right sides of the Israelites. Maintaining such a configuration would require forces acting in ways that are not fully accounted for by a single directional wind. Therefore, the principal force responsible for sustaining the walls of water appears to have been supernatural, even though it is not explicitly described in the text.

Nevertheless, even if some aspects of the event could be explained through natural processes, the timing, magnitude, and effectiveness of those processes would still point to divine intervention. The coincidence of a powerful wind occurring at precisely the moment needed to deliver the Israelites would itself constitute a remarkable miracle. Thus, whether God employed natural forces, supernatural forces, or a combination of both, the crossing of the Red Sea remains a testimony to divine power and a great deliverance.

Figure 1. Conceptual illustration showing the left force and right force required to sustain the walls of water, together with the east wind acting along the Israelites' direction of travel.

