Let $\mathfrak{g}$ be a complex simple Lie algebra and $\mathfrak{b} = \mathfrak{t} \oplus \mathfrak{u}^+$ a fixed Borel subalgebra. Let $\Delta^+$ be the set of positive roots associated with $\mathfrak{u}^+$ and $\mathcal{K} \subset \Delta^+$ the Kostant cascade. We elaborate on some constructions related to $\mathcal{K}$ and applications of $\mathcal{K}$. This includes the cascade element $x_{\mathcal{K}}$ in the Cartan subalgebra $\mathfrak{t}$ and properties of certain objects naturally associated with $\mathcal{K}$: an abelian ideal of $\mathfrak{b}$, a nilpotent $G$-orbit in $\mathfrak{g}$, and an involution of $\mathfrak{g}$.

**Keywords:** Root system, cascade element, abelian ideal, Frobenius algebra, nilpotent orbit.

**MSC:** 17B22, 17B20, 17B08, 14L30.