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Representation theory of symmetric spaces is an increasingly important in many areas mathematics, including algebraic geometry, number theory, and Lie theory. Given an algebraic group  $G$  and an involution  $\theta$ , we can define the extended symmetric space of  $G$  as  $R_\theta = \{g \in G | \theta(g) = g^{-1}\}$ . In this talk we use poset diagrams to investigate the structure of the extended symmetric spaces for certain Weyl groups, particularly their decomposition into  $\theta$ -twisted conjugacy classes. We will present results concerning Weyl groups of type  $A_n$  and then extend some of the work to types  $B_n$  and  $F_4$ . (Received September 13, 2014)