

## **Does magnetic helicity effect active region evolution and energetics?**

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**Abstract.** The purpose of this investigation is to determine whether there is a difference between the evolution of an active region with additional new flux emergence if the new flux has either the same or the opposite sign of helicity. Of these two scenarios, the one that produces the most energetics is still a topic for debate. We present a study of two active regions following the emergence of a bipole, one with the same and one with the opposite sign of helicity from the active region. In both cases new flux emerged at the North-Western edge within the negative (leading) polarity. The lifetime of the first bipole was 37 hrs and the counter-helicity bipole was 67 hrs. Using the instruments on Hinode we examine the interactions with the pre-existing magnetic field over the lifetime of the bipoles, including the resultant flows, flares, CMEs and the energetics of activity. We discuss the role of reconnection in re-distributing helicity and how this effects the active region evolution.