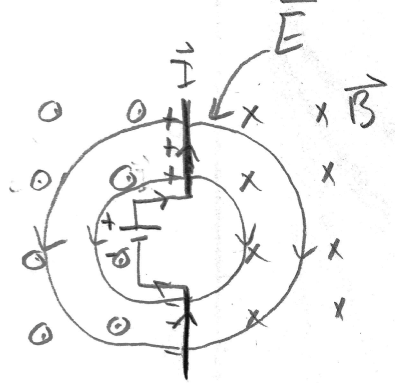
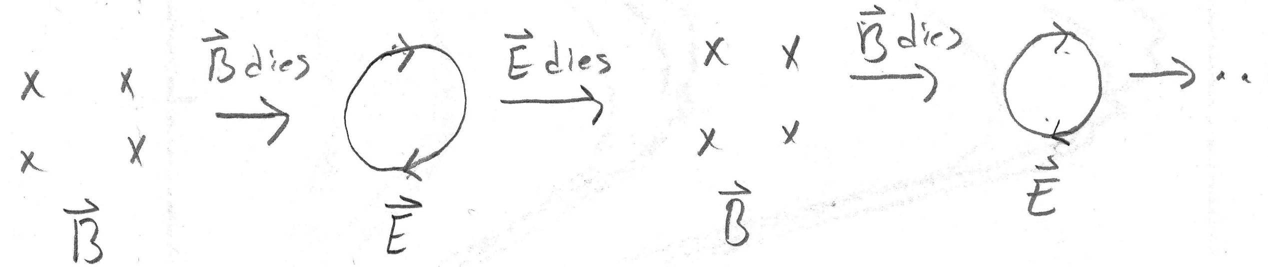


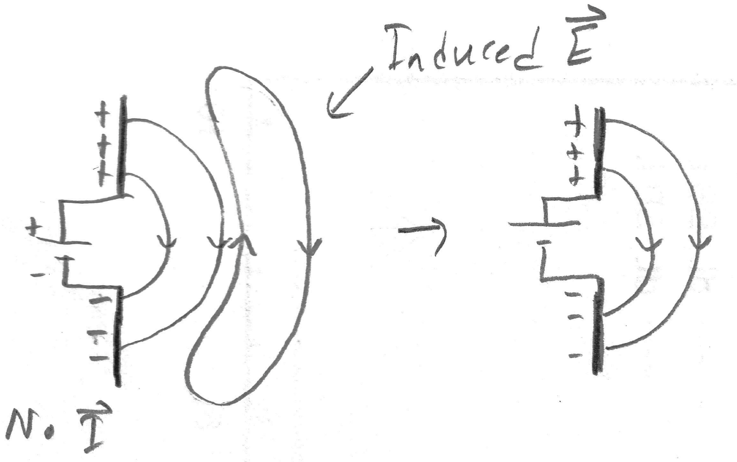
The charge distribution creates an $\vec{E}$ field. The current creates the $\vec{B}$ field.

In this case the $\vec{B}$ will be temporary because current can only flow briefly. <u>But</u> a dying $\vec{B}$ field means a changing flux



Three points to make here. First, how do we find the direction for each step in this chain? Use Lenz's Law. This is tricky, so remember that each step should produce fields like its precursor.

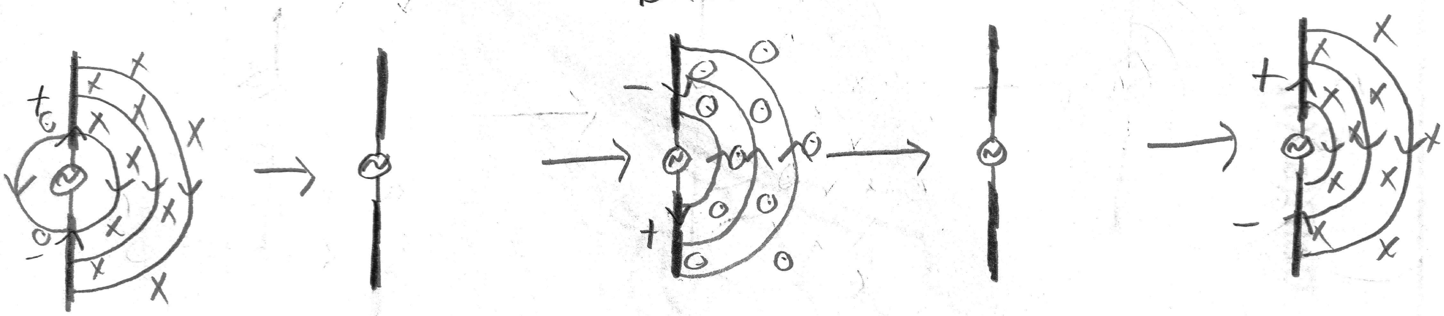
So the 1st $\vec{E}$ loop should produce a $\vec{B}$ field into the page, as it does.



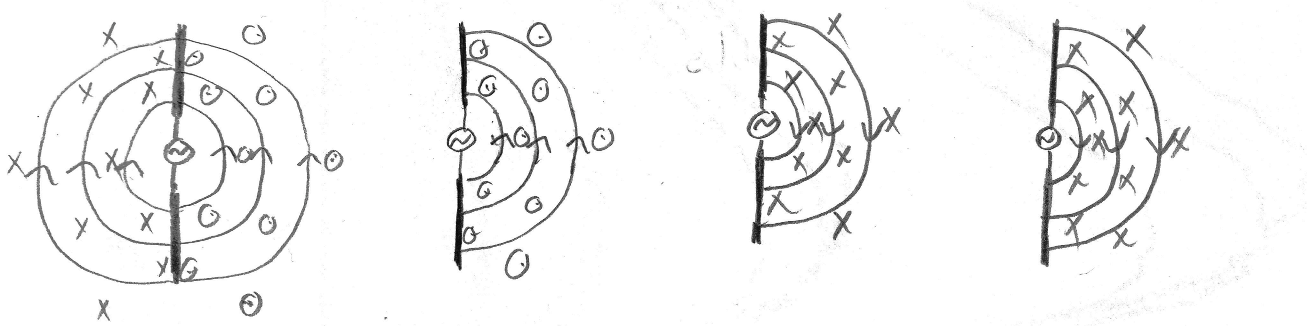
The induced $\vec{E}$ conflicts w/ the charge-based field the antenna is creating, and so dies off right away.

For the more complex AC case, consider w/o induced fields first.

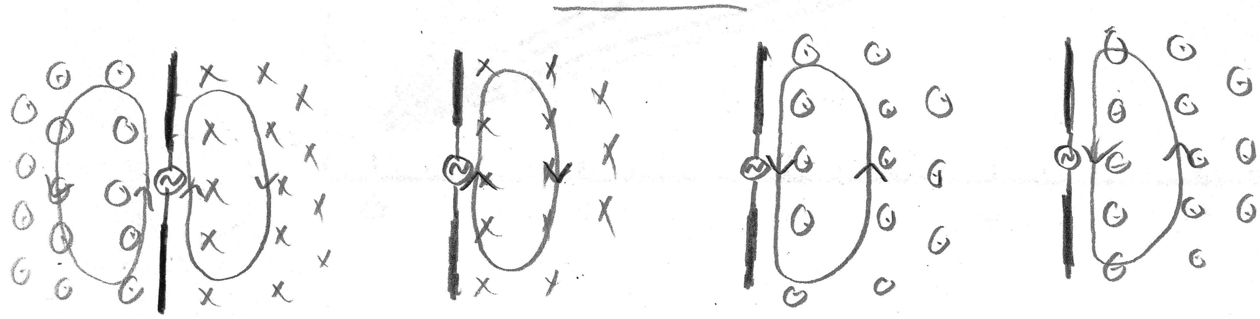
Driven:



Change:



Induced:



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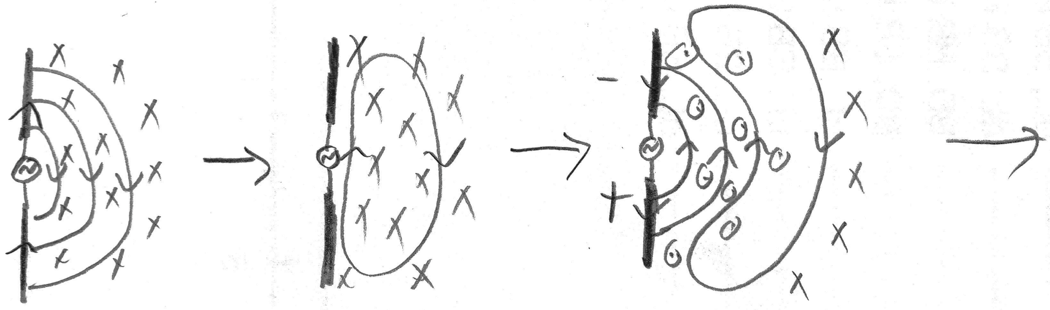
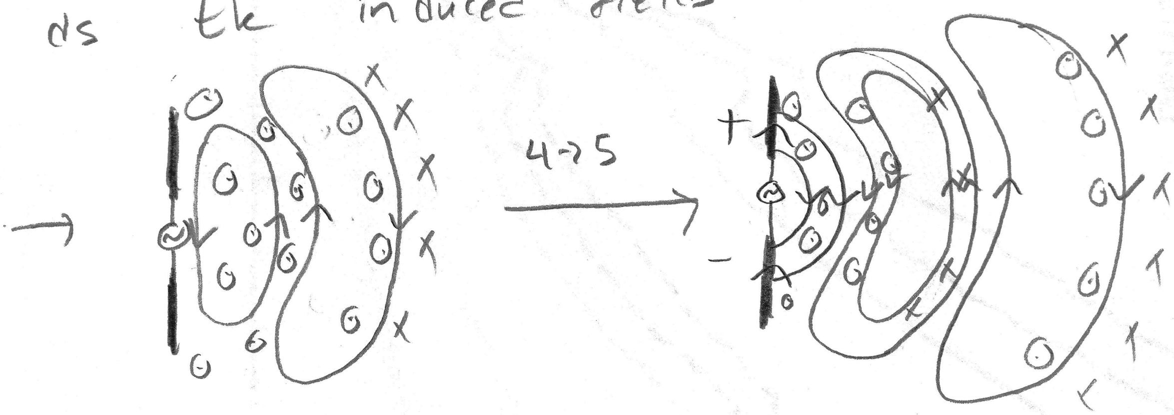
Total = Driven + Induced



Now between the 3rd + forth step we need to add to this 3rd step both the change in the driven fields, as well as the induced fields for this step.



Remember that field lines don't like to be close, they repel, spread out! This pushes the electric "bubbles" from previous steps <u>out</u> from the antenna.

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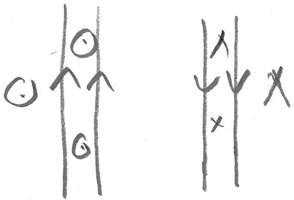

Plane waves

Always moving