Applied Mathematics (Calculating Decalage)

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Many articles (scientific and otherwise) have shown that rubber powered models are at optimum trim when the decalage (angular difference between wing and stab) is approximately 3 degrees.

The tangent of three degrees is .0524; therefore the average cord of the stab, multiplied by .0524 will give the amount of "up" elevator to apply, assuming that the wing is at zero degrees.

See chart below for some typical measurements ....

Avg Stab Chord	Decalage (Expressed in Inches/Fractions
1"	.052 (a little less than 1/16")
1-1/2"	.078 (a little more than 1/16")
2"	.104 (a little more than 3/32")
2-1/2".....	.131 (a little more than 1/8")
3"	.157 (a little more than 5/32")
3-1/2"	.183 (a little less than 3/16")
4"	.209 (a little less than 7/32")
5"	.262 (a little more than 1/4")

Center of gravity, thrust line, and lateral balance are all important factors in achieving flying trim; but decalage is critical in achieving optimum glide trim with minimum added nose weight which is often required in flying models.

"Up" elevator can also be expressed as negative incidence.