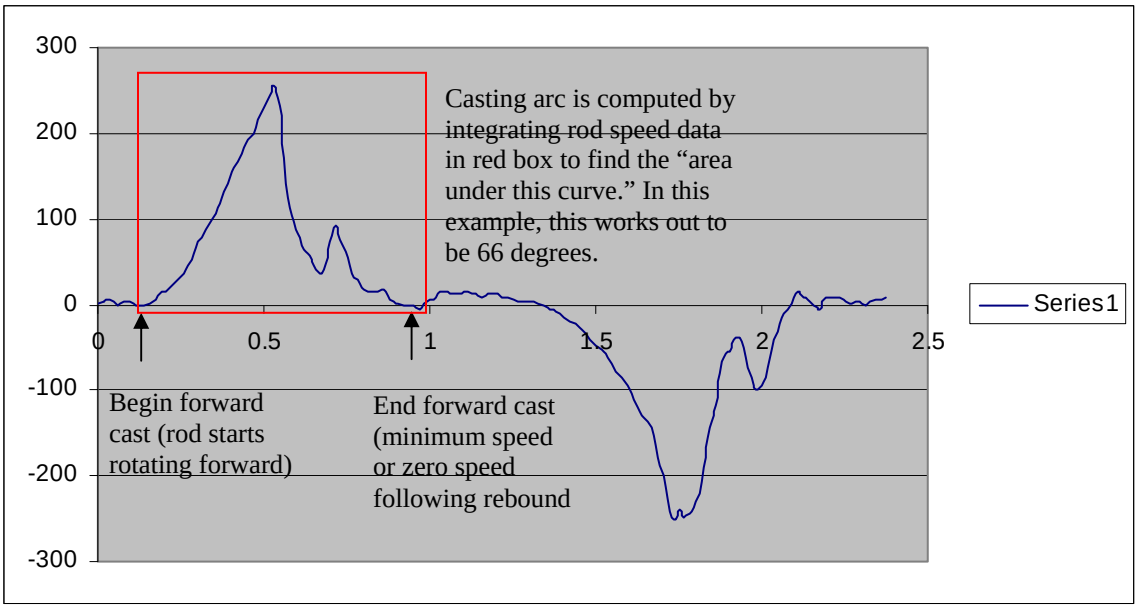
COMPUTATION OF CASTING ARC, DRIFT AND CREEP

Noel Perkins and Bruce Richards
June 4, 2008

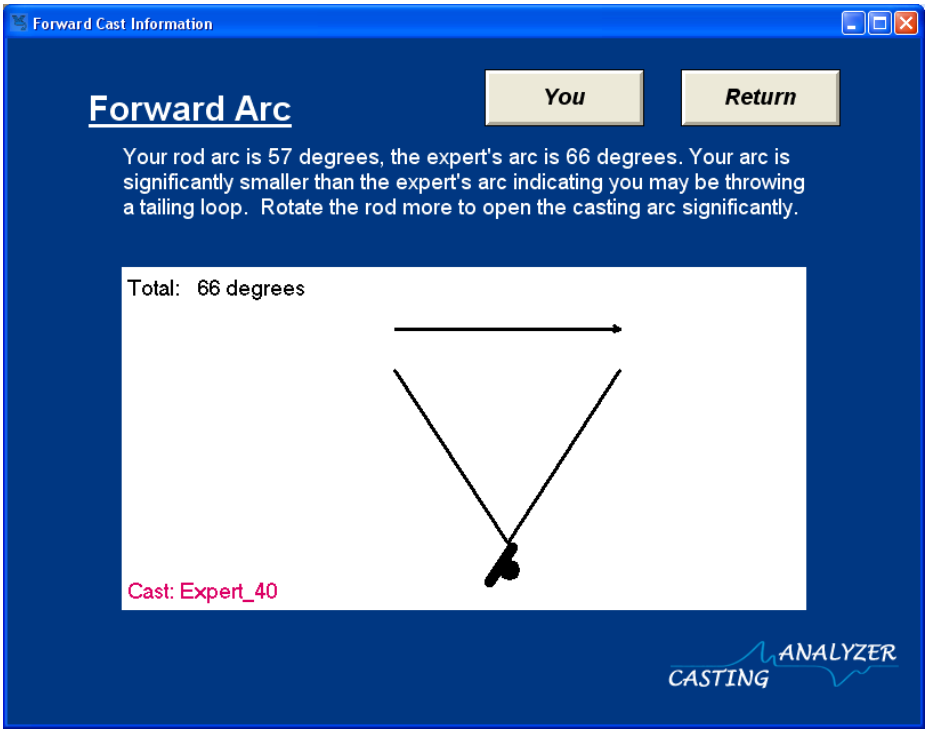
The following is a summary of how the casting arc is computed and how drift and creep are computed. We present three example casts: 1) a forward cast without creep or drift, 2) a forward cast with drift, and 3) a forward cast with creep. In each case we illustrate how you can identify the start and end of the forward cast and the start/end of drift or creep (if present) from the rod speed data for an entire cast (click “Entire” button in *Casting Analyzer* software) and then how we arrive at the information for the forward casting arc (click “Front Cast” then “Front Arc” in *Casting Analyzer* software).

1. Forward Cast without Drift or Creep.

We begin with the simplest case of a forward cast without drift or creep. The example cast here is the "Expert40" in the *Casting Analyzer* software.

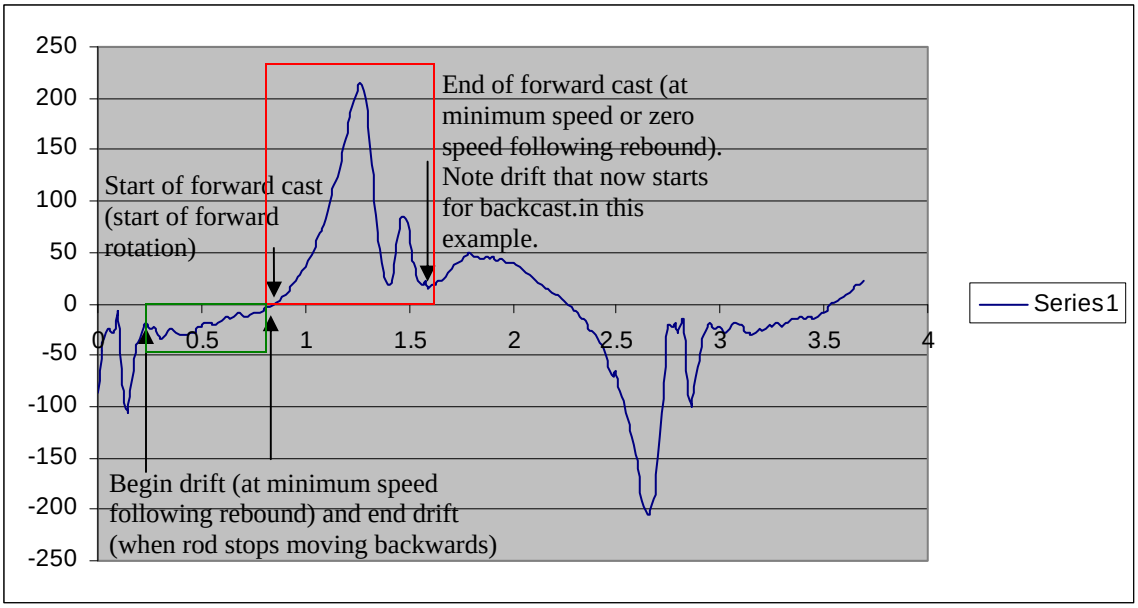


This computation leads to the result displayed below in the *Casting Analyzer* software.

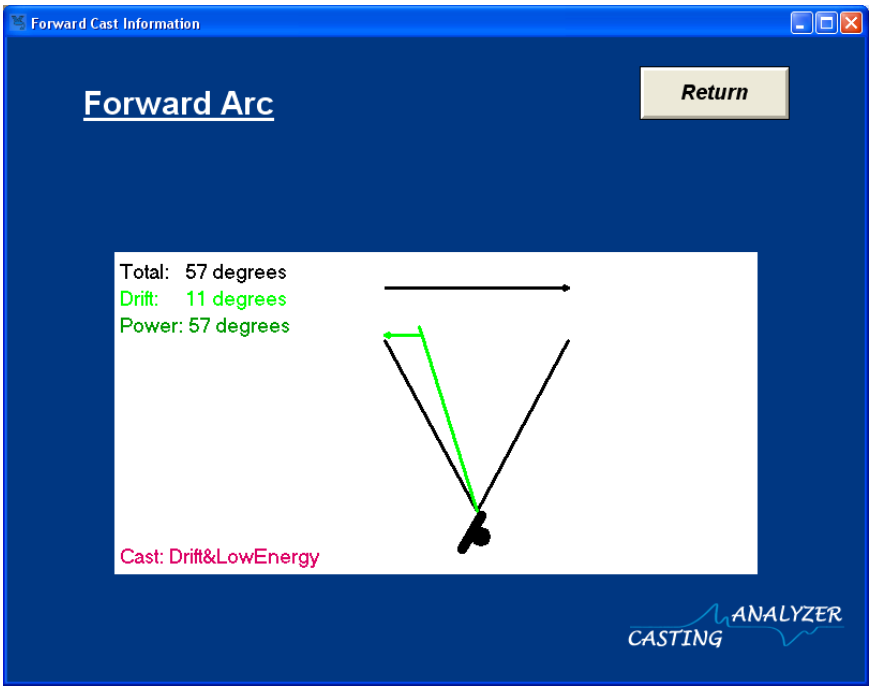


2. Forward Cast with Drift

Example here is “DriftLowEnergy” in our casting file archive.

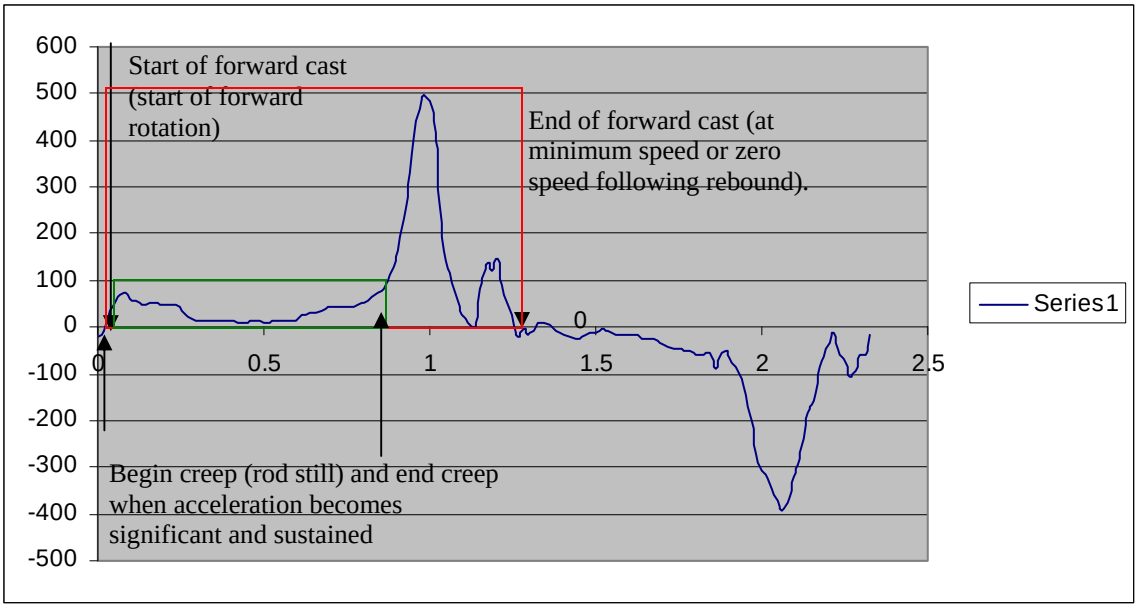


The casting arc is computed by integrating the data in the red box and is 57 degrees. The portion of the casting arc that was first established by drift is computed by integrating the data in the green box and is 11 degrees. These results are displayed in the *Casting Analyzer* software below.



3. Forward Cast with Creep

Example here is “CreepNonsmoothFC” in our casting file archive.



The casting arc is computed by integrating the data in the red box and is 98 degrees. The portion of the casting arc consumed by creep is computed by integrating the data in the green box and is 27 degrees. These results are displayed in the *Casting Analyzer* software below.