



**Welcome
to
Radar Plotting**

Objectives

Ability to operate, and to interpret and analyze information obtained from radar, including the following:

performance including:

Factors affecting performance and accuracy

Setting up and maintaining displays

- Detection of misrepresentation of information, false echoes, sea return etc., racons and sarts

Objectives (continued..)

Ability to operate, and to interpret and analyze information obtained from radar, including the following:

use including

- Range and bearing, course and speed of other ships, time and distance of closest approach of crossing, meeting and overtaking ships**
- Identification of critical echoes, detecting course and speed changes of other ships, affect of changes in own ships course or speed or both.**
- Application of the International Regulators for preventing collisions at sea**
- Plotting techniques, relative and true motion concept**
- Parallel indexing**

Objectives (continued..)

Ability to operate, and to interpret and analyze information obtained from radar, including the following:

System performance and accuracy, tracking capabilities and limitations and processing delays

Use of Operational warnings and system tests

Methods of target acquisition and their limitations

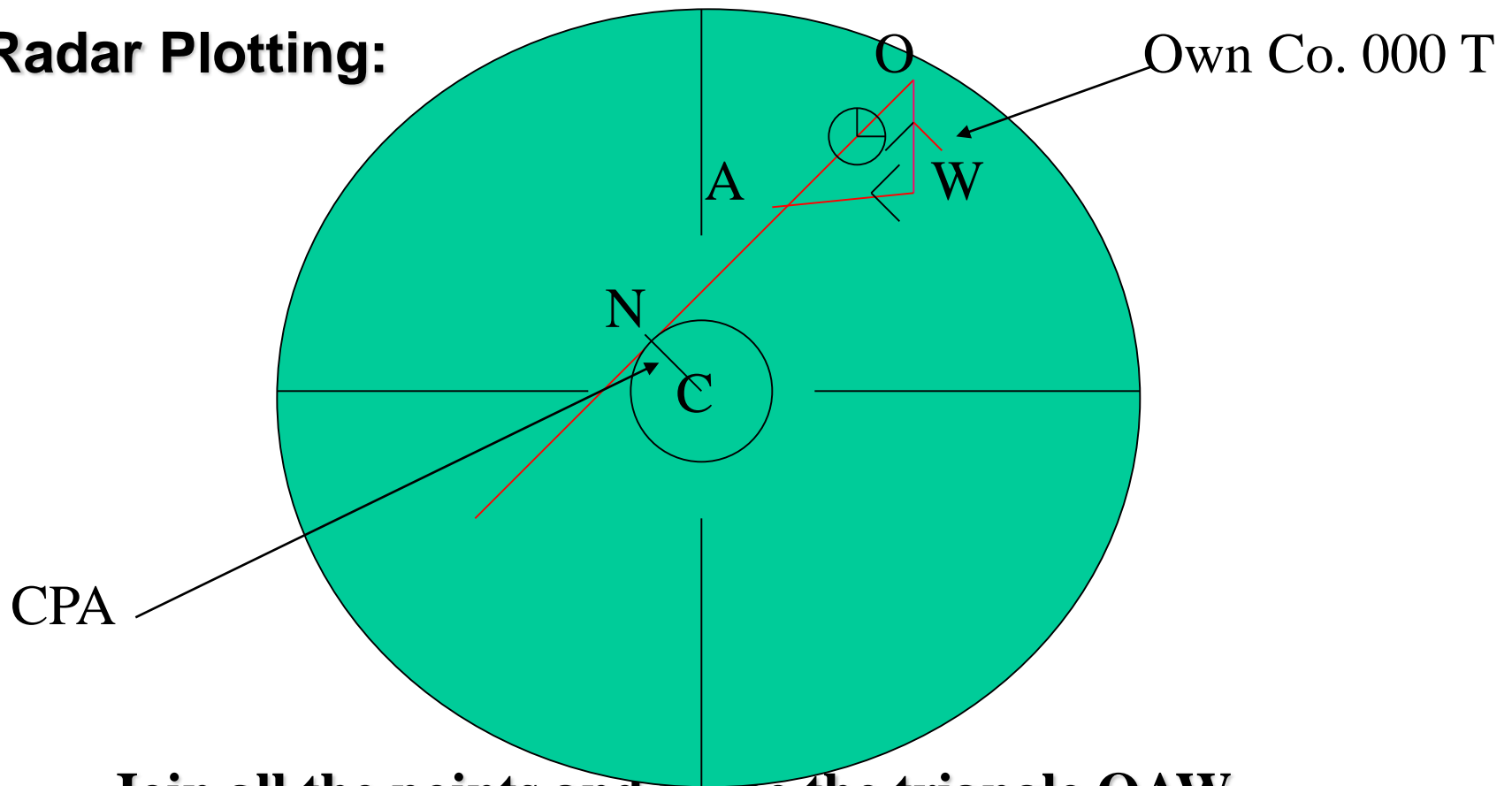
True and relative vectors, graphic representation of target information and danger areas

Deriving and analyzing information, critical echoes, exclusion areas and trial manoeuvres

Radar Plotting:

- **While plotting on a chart please ensure that the scale remains constant.**
- **The Interval used for taking the observations is crucial to ensure that the plot can be developed into a readily understandable and worked triangle.**
- **The Interval is again dependent upon the range scale in use and the speed of the two ships and also on the approach speed between the ships.**
- **Use the Interval in such a manner so that the time may be converted easily into one place of decimal. (6m = .1 hr.) (speed. 13.5 knots Interval 6m distance traveled 1.35NM)**
- **North up plotting is generally considered more suitable since it compares well with the chart**

Radar Plotting:



Join all the points and name the triangle **OAW**

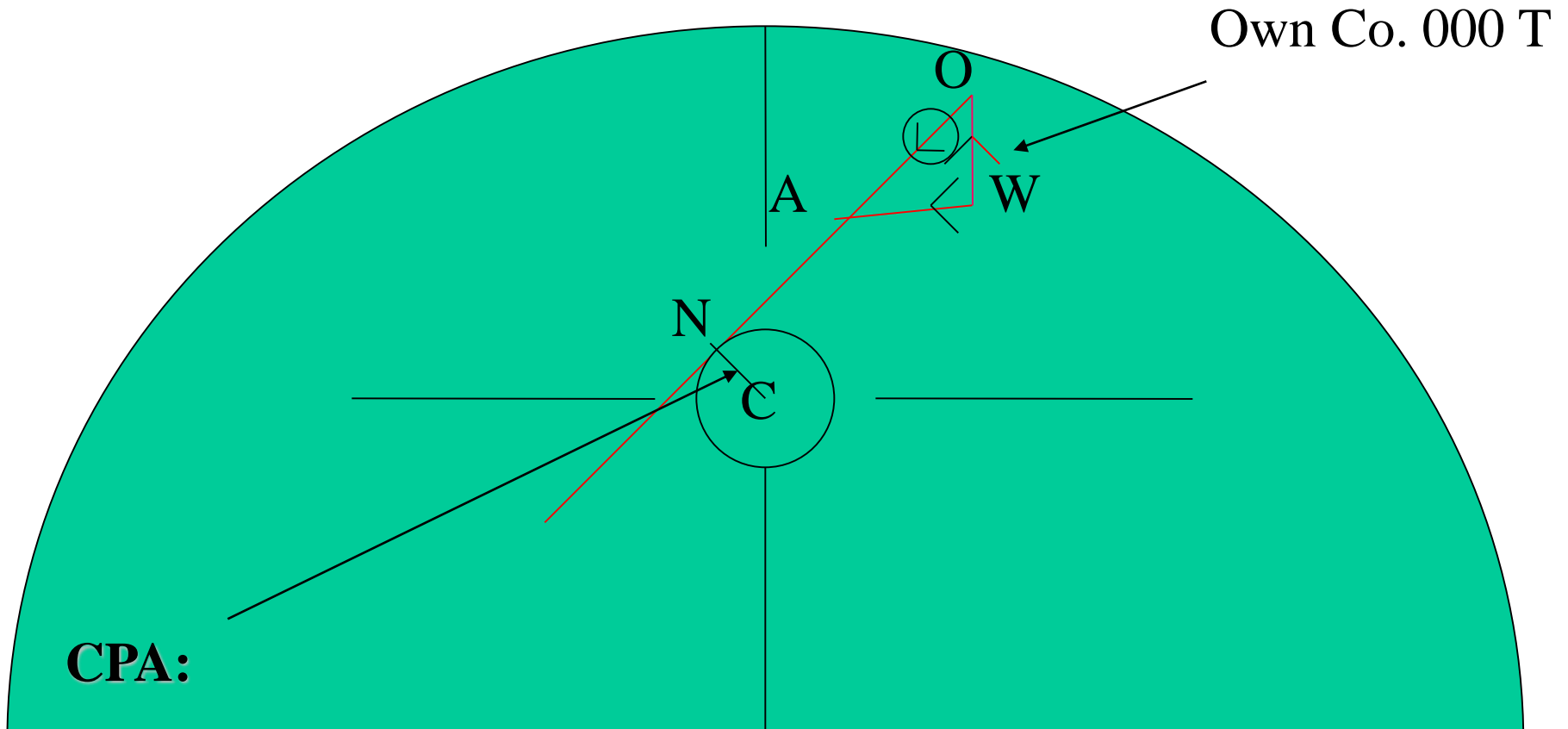
The arrowheads are again a conventional symbol.

For line **WO the arrowhead always is in the direction of **WO** and not **OW****

Similarly the arrowhead is in direction **WA and not **AW****

Also the Approach line has the arrowhead as **OA and not **AO****

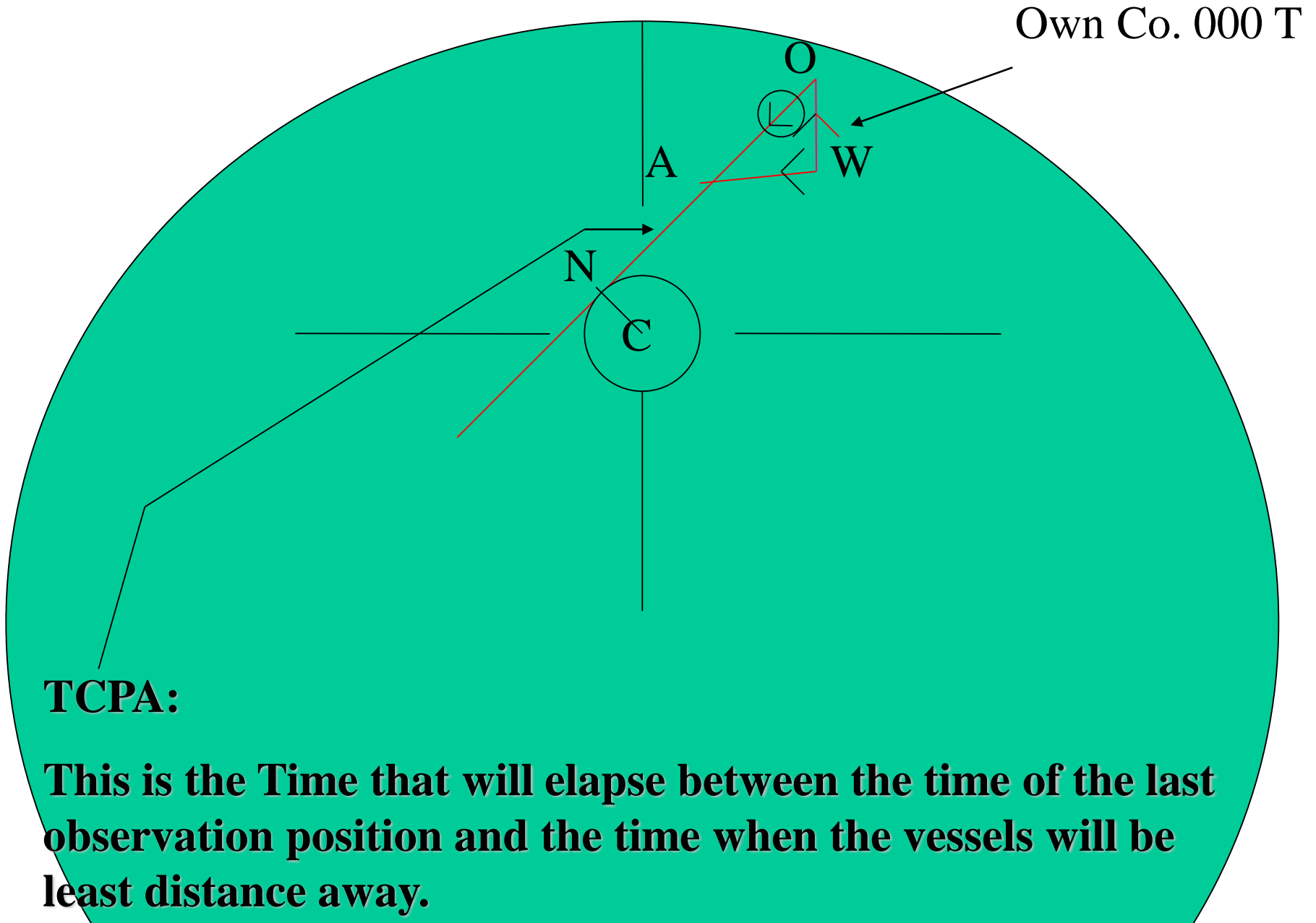
Radar Plotting:



This is the closest point of approach between the two vessels, however this should not be confused with bow pass.

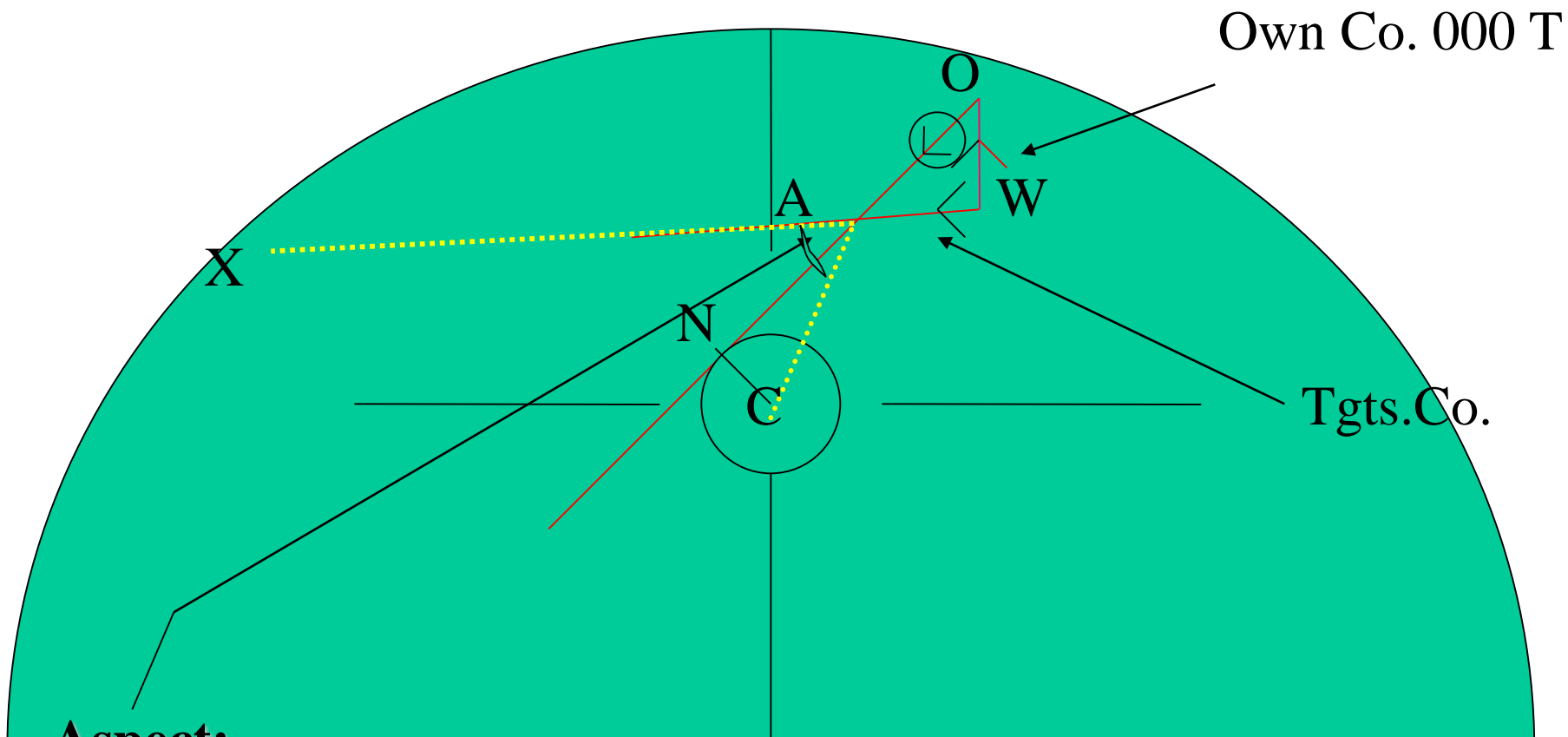
At CPA, the distance between the vessels is the least. This remains constant so long as the vessels do not make any alterations to course and or speed.

Radar Plotting:



This is the Time that will elapse between the time of the last observation position and the time when the vessels will be least distance away.

Radar Plotting:



Aspect:

**Is the bearing of Own vessel from the target vessel.
Represented in the figure by CAX.**

**Aspect is conventionally given not as three figure notation but
as Relative bearings, that is Red or Green**

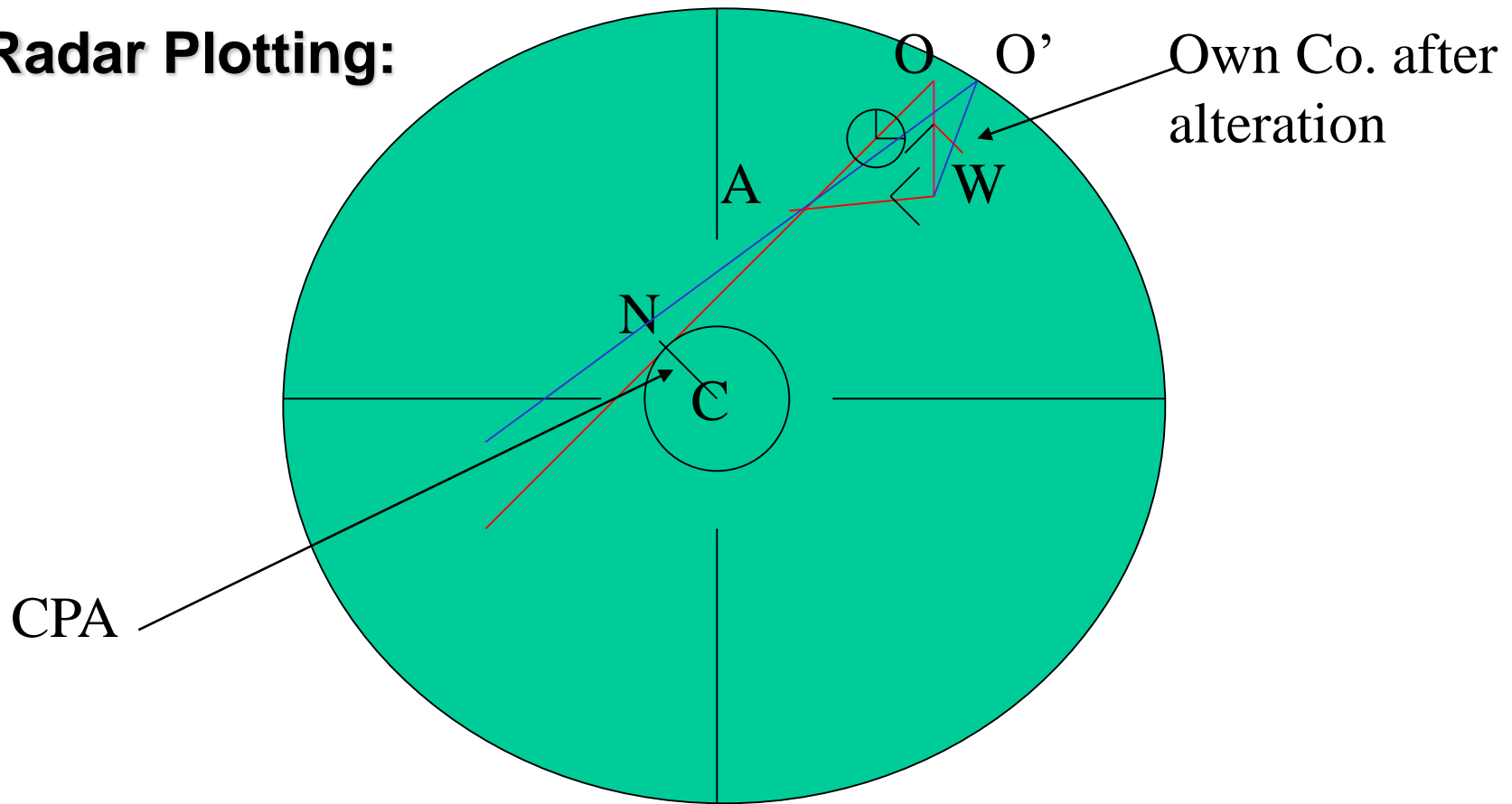
Radar Plotting:



T u t o r i a l . e x e

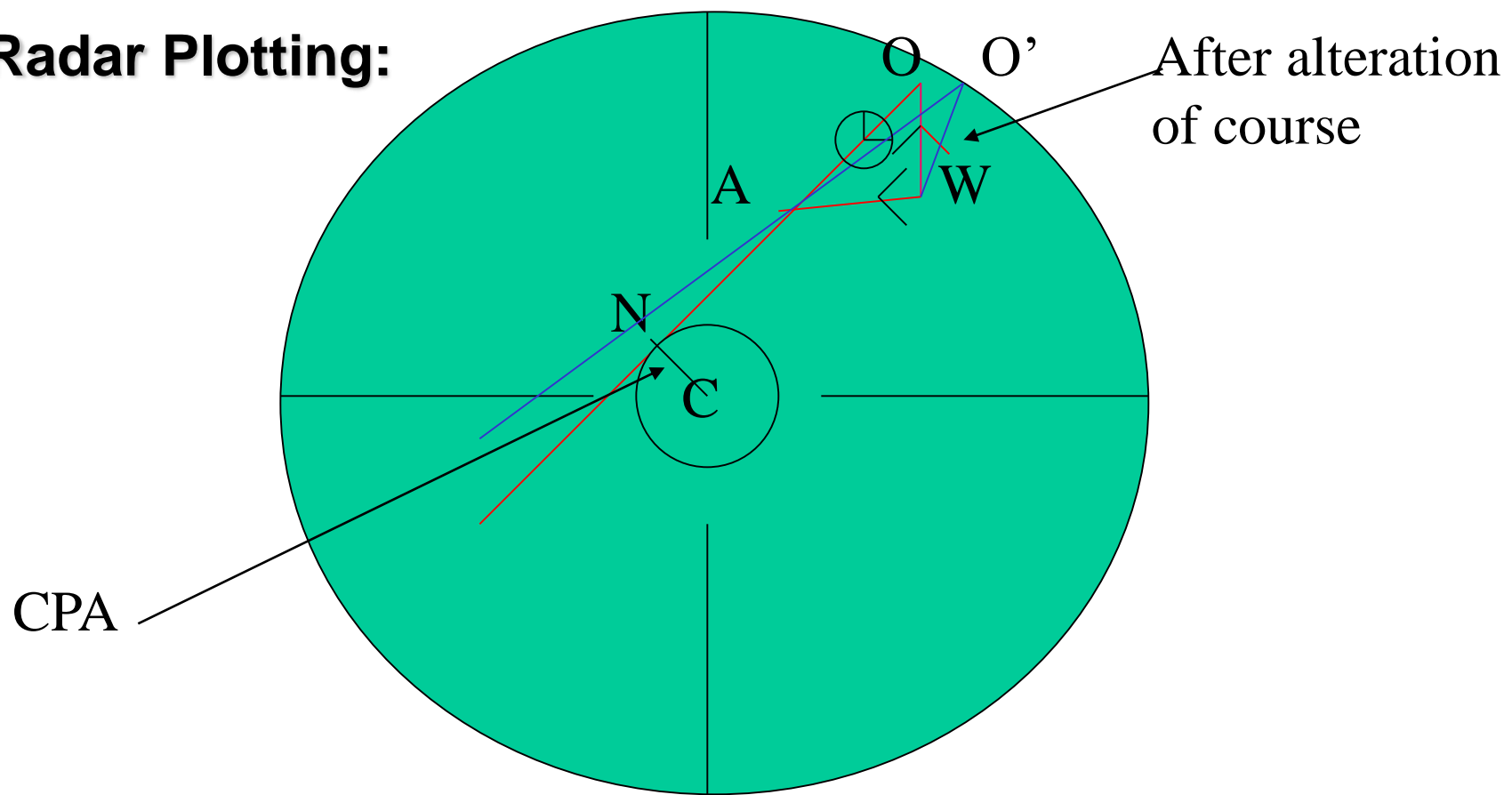
Double click on the Symbol above to view the Plotting sequence animation.

Radar Plotting:



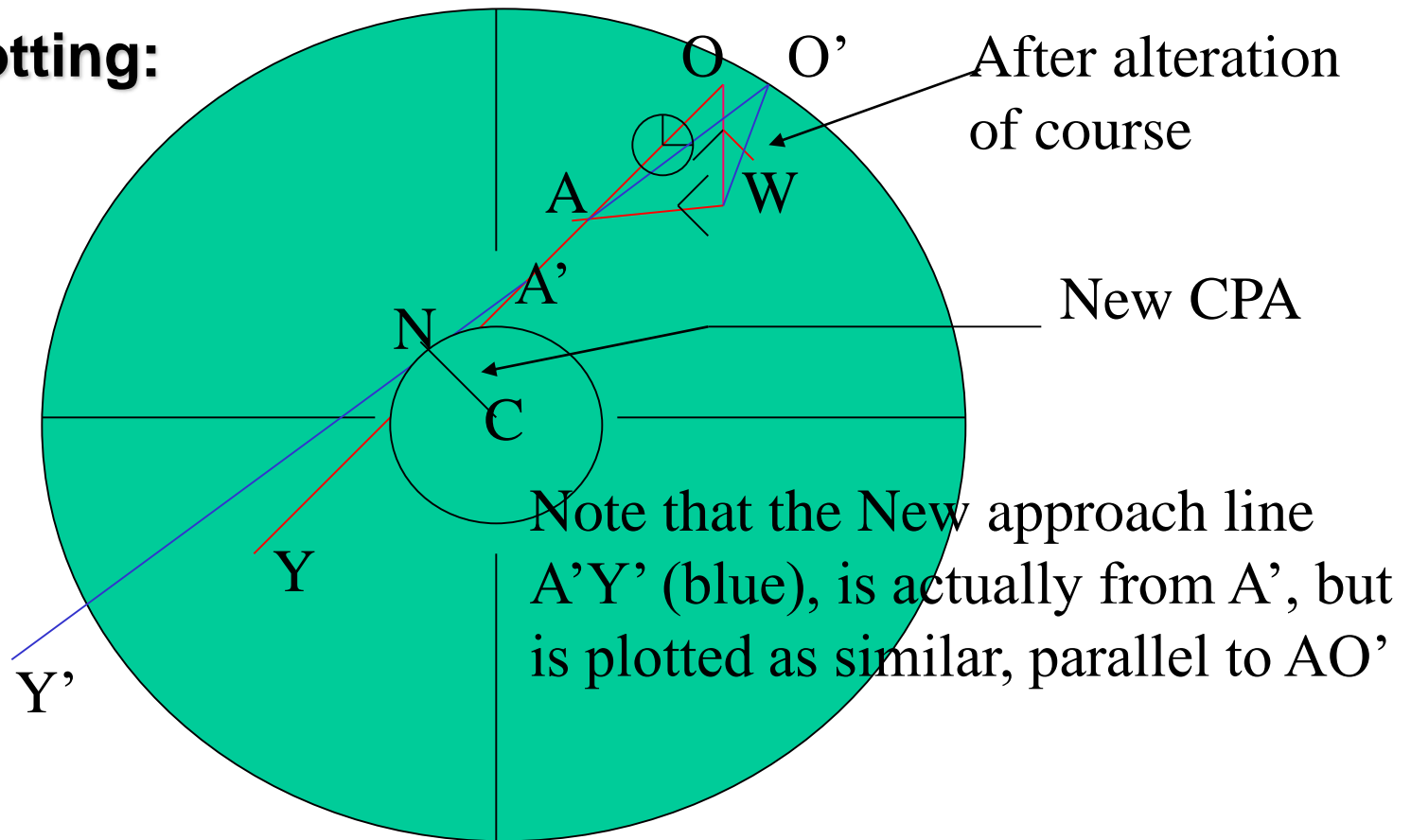
For any additional points so marked after any alteration of course and or speed the new O or A or W or all are marked thus O' A' W' and if more then O'' A'' W''

Radar Plotting:



**Note on the figure, that due to a decision to alter course by Own vessel, a new triangle was not formed, but the existing triangle was amended.
This will hold true even if there is a performance delay.**

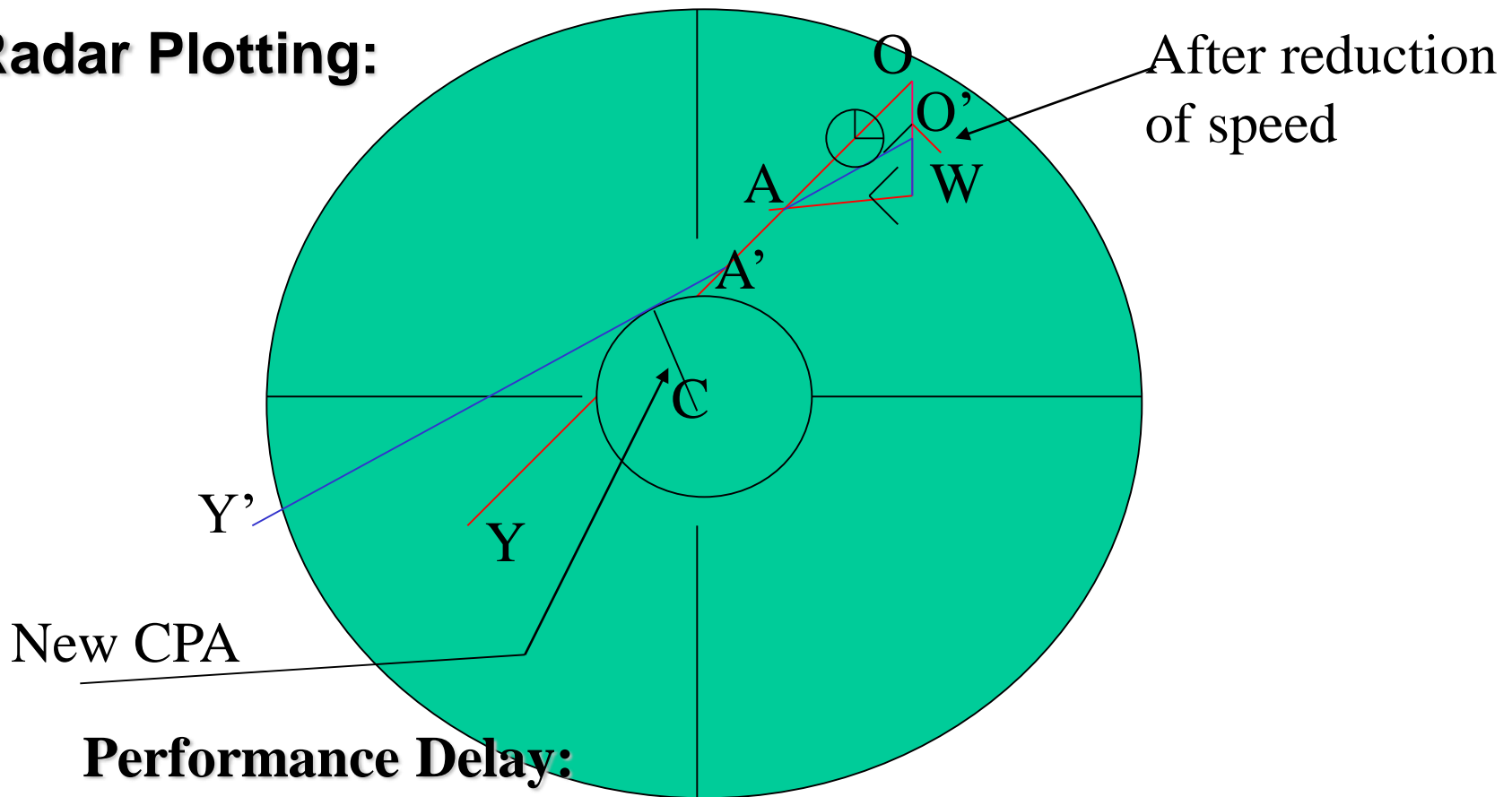
Radar Plotting:



Performance Delay:

Is the time taken by the vessel, to respond to a command.
For example: Command alteration of course by 30 degree, actually takes effect after a certain duration of time.
This duration of time is again dependent on various factors.

Radar Plotting:

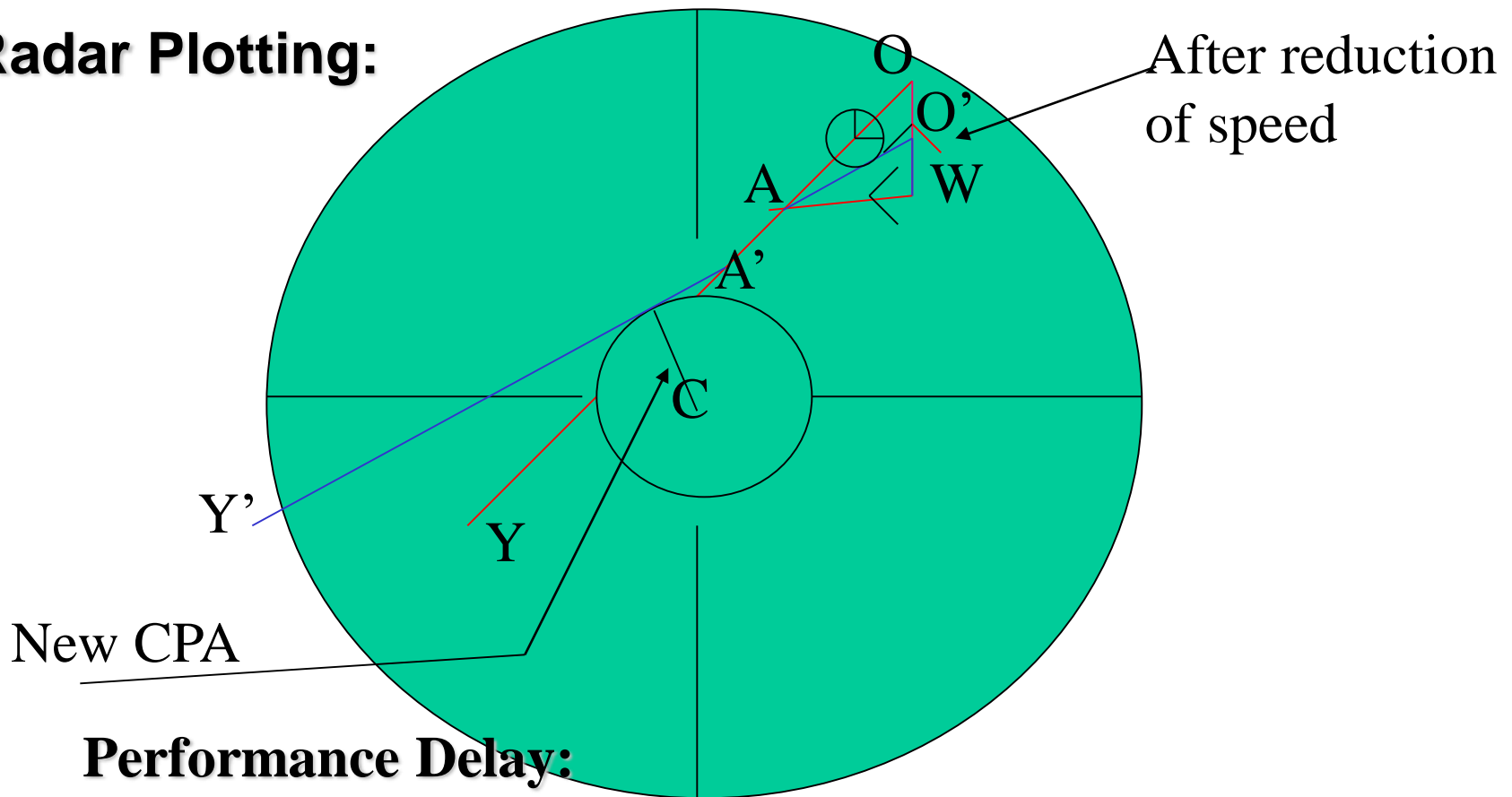


Performance Delay:

Is the time taken by the vessel, to respond to a command.
For example: Command reduction of speed to half of original speed, actually takes effect after a certain duration of time.

This duration of time is again dependent on various factors.

Radar Plotting:

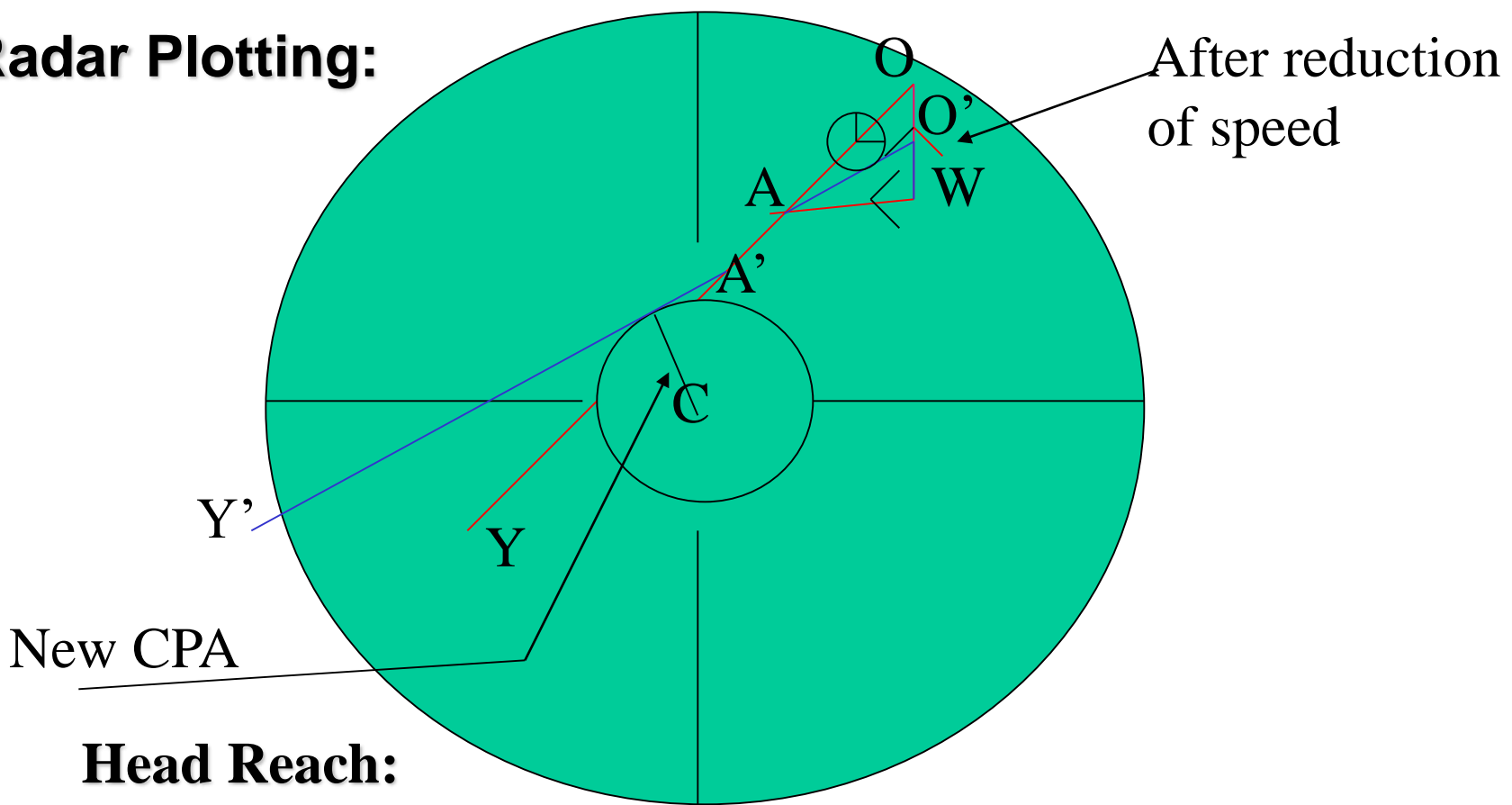


Performance Delay:

This depends on:

- Ship type
- Loading conditions (Loaded or in ballast)
- Condition of the sea
- Stability of the ship
- The magnitude of the action ordered

Radar Plotting:



Head Reach:

This is the distance that a ship travels after the ME has been stopped. This is generally given as distance traveled in a fixed period of time.