

**Observer Basic Skills Course
Training Outline**

Student's Version

Balloon Federation of America
Competition Committee

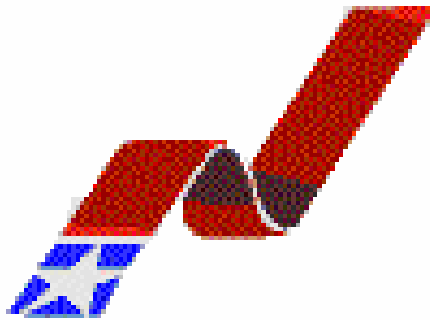


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Observer Basic Skills Course Outline

1. Introduction to a Balloon Event

- 1.1. Series of tasks focusing on pilot's navigational skill
- 1.2. Measured by:
 - 1.2.1. How closely s(he) drops a marker to a target, or
 - 1.2.2. How long or short a flight s(he) may have
- 1.3. Your job will be to note how well the pilot you are assigned to for a particular task is able to execute the task. You will record this information on an Observer Report Sheet.

2. What an Observer Is

- 2.1. *Definition of an Observer:* An observer is a competition official whose duties are to impartially record particulars of positions, times, and distances achieved during a competition task.
- 2.2. Observer's relationship to the pilot
 - 2.2.1. Act impartially
 - 2.2.2. Be cordial
 - 2.2.3. Do not interpret the rules
 - 2.2.4. Do not offer advice
 - 2.2.5. Do not argue. If you disagree, agree to disagree. Report the details to a debriefer and let a scoring officer decide the correctness of the matter.

3. Brief Overview of the Observer Report Sheet and Supplemental

- 3.1. Review handout of sample report sheets; one completed and one blank.
- 3.2. Complete blank report sheet as you go through this course.

4. What an Observer Does

- 4.1. At event registration
 - 4.1.1. Register by required time
 - 4.1.2. Receive your observer packet which will contain:
 - Competition map
 - Rule book
 - Schedule of events, including the time of competition briefings and competitive tasks
 - Plastic grid
 - 4.1.3. Determine your pace factor (using established pace course)
- 4.2. Before the event begins
 - 4.2.1. Read and become familiar with the competition rules
 - Discuss sections of the rule book
 - Note sections pertaining to Observers and Goal Definitions
 - 4.2.2. Prepare your maps
 - Mark areas with special meanings
 - Mark features of special interest

- 4.2.3. Attend a Master Pilot Briefing to listen to the Event Director and pilot discussion of the event weather, procedures and rules. Note any changes from your packet information.
- 4.2.4. Attend an Observer Briefing, which will provide more detailed information about the competition and provide you the opportunity for questions.
- 4.3. Before each competitive flight:
 - 4.3.1. Come to the Observer Briefing (usually held 15-30 minutes prior to the pilots' Task Briefing) and get your pilot assignment.
 - 4.3.2. Find and sit in a chair with your assigned pilot's number. Stay seated even if your pilot doesn't show; the pilot may be late.
 - 4.3.3. Get your copy of the Task Sheet and any diagrams. (Observers do not normally get a copy of the weather sheet.)
 - 4.3.4. Introduce yourself, if given the opportunity, but don't ask questions of the pilot or crew chief. If you have questions, ask the Chief Observer or Assistant Chief Observer.
 - 4.3.5. After the Task Briefing, stick close to your assigned pilot
 - 4.3.6. Go with the pilot/crew to the launch area
 - 4.3.7. If a common launch, be aware of and attend any "Supplementary Briefings" held at the Signals Point (Rule 8.9)
 - 4.3.8. If the launch is a pilot's choice, at the selected site go with the pilot or crew member to observe them as they obtain landowner permission to launch; record details
 - 4.3.9. Record the location and time of launch and other launch details
 - 4.3.10. Fly with the pilot if asked and you consent to do so. Do not ask if you may fly!

- 4.3.11. If you “follow” with the crew in the recovery vehicle, you should be given a window seat so that you can view the balloon in flight
- 4.3.12. Stay with the crew so that you observe:
 - The marker drop(s)
 - The landing
- 4.3.13. Locate the marker(s) in the time permitted
 - Basic time (search) period (Rule 6.1.2)
 - Extension(s) of time (Rule 12.7.4)
- 4.3.14. Measure the marker drop immediately if the crew permits, but don’t get left at the marker drop site!
- 4.3.15. Observe and record the location and time of the final landing
- 4.3.16. Go with the crew and observe them as they obtain landowner permission to enter the property and recover the balloon
- 4.3.17. Measure any marker drops which could not be measured during the chase
- 4.3.18. Complete your Observer Report Sheet during recovery, if possible
- 4.3.19. Review your completed report with the pilot
- 4.3.20. Obtain the pilot’s signature on the Observer Report Sheet; sign the report yourself. Do not make any changes to the report once signed!
- 4.3.21. Return to Debriefing with:
 - The completed and signed Observer Report Sheet
 - Rough (order of magnitude) estimate of pilot’s result
 - All recovered markers

4.3.22. Check in at Debriefing and wait your turn to “tell your story”

5. How an Observer Does It

5.1. Have the right equipment

5.1.1. Clothing and footwear

- Comfortable, natural fabrics
- Cover for arms and legs
- Boots suitable for conditions (e.g., dew covered ground)

5.1.2. Tools

- Observer credentials for the event
- Several pens and pencils (black or blue only)
- Clipboard and notepad
- Compass
- Grid [metric, UTM, or imperial (feet/inches)]
- Tape measure—at least 30 meters (approx. 100 feet)
- Reliable digital watch
- Spray paint (small can; bright color)
- Sturdy bag to carry listed items

5.2. Map Reading

5.2.1. Look at the map for:

- Scale
- Features

- 1) Roads
 - 2) Buildings
 - 3) Contour lines
 - 4) Power lines
 - 5) Railroads
 - 6) Rivers, lakes, swamps, etc.
- Discrepancies
 - 1) Roads not on the map
 - 2) Other geographical features not on map

5.2.2. Preparing your map for competition

- Mark/check accuracy of PZs
 - 1) Red PZs—Altitude restriction
 - 2) Yellow PZs—No launches or landings
- Highlight the following:
 - 1) “Red” roads
 - 2) Power lines
 - 3) Grid reference numbers
 - 4) Other useful references
- Identify (internal to) the map that the map is yours
- Cover carefully with clear contact paper for long events

5.2.3. Using your map

- Throughout a flight keep your place on the map
 - 1) Trace your position on the map as you travel
 - 2) Use a removal pen or pencil mark, or “Post-It” labels
- Use map features to help you determine your position
 - 1) Road intersections
 - 2) Bridges
 - 3) Topographical features
 - 4) Buildings
 - 5) Major power lines that are on the map

5.2.4. Charting your position on the map using 8-digit coordinates

- Know the scale of your map and the coordinate system used
- Find a point of interest on the map
- Overlay a grid on the map lining it up with the lines of the coordinate square on the map that contains the point
- Form point coordinates from the map and grid, using the rule of thumb: “Easting then Northing”
 - 1) First read the two-digit coordinate on the West side of the coordinate square on the map, using map coordinates running West to East (“Easting”) [EE-- /----]
 - 2) Next read the two-digit coordinate on the South side of the coordinate square on the map, using map coordinates running South to North (“Northing”) [ee-- / NN--]

3) Then, with each small box counting as 10, the third number of the “Easting” coordinate is read using the right-most edge of the small box on the grid that contains the point and the third number of the “Northing” coordinate is read using the bottom edge of the same small box [eeE- / nnN-]

4) Finally, the fourth number of each coordinate is estimated as the distance in tenths between the lines of each box on the grid, and as before—first estimate the distance between the West-to-East lines and then the South-to-North lines [eeeE / nnnN]

5.2.5. Map reading (exercises)

- Finding coordinates given a point of interest
- Finding a point of interest on the map given the coordinates

5.3. Compass Use

5.3.1. Determining the compass direction to and from an object

5.3.2. Magnetic North vs. True North (Variation)

5.3.3. Effect of local metal—e.g., vehicle, railroad tracks (Deviation)

5.3.4. Accuracy in degrees

5.4. Review of Possible Tasks for an Event:

5.4.1. Fly On Task (FOT)

5.4.2. Pilot Declared Goal (PDG)

5.4.3. Fly In Task (FIT)

5.4.4. Judge Declared Goal (JDG)

5.4.5. Minimum Distance Double Drop (MNDD)

5.4.6. Gordon Bennett Memorial (GBM)

5.5. Locating the marker

5.5.1. Marker drops on common “targets” are measured by the Scoring Team (FIT, JDG, MJDG)

- If drop is measured by the Scoring Team:
 - 1) Mark the Observer Report Sheet for the task with “Measured on Field” or “M.O.F.”
 - 2) Continue with the crew to observe the remainder of the flight and landing
- If the drop is NOT measured by the Scoring Team, the marker will have fallen outside the scoring area:
 - 1) Mark the drop with a small amount of paint and take possession of the marker
 - 2) Mark the location of the drop on your map
 - 3) Measure as required by the task at the time of the drop or after recovering the pilot

5.5.2. Drops not measured by the Scoring Team usually involve a “goal” selected by the pilot (PDG, FOT, MNDD):

- Drops on a road
 - 1) Mark the drop on the road with a small spot of spray paint at the edge of the weighted part of the marker closest to the goal
 - 2) Discretely label the spot with the pilot’s number using spray paint

- 3) Pick up the marker and take it with you
 - 4) Mark the drop on your map
 - 5) Draw a rough diagram of the drop on your notepad
 - 6) Measure at the time of drop or after recovering the pilot
- Drops readily accessible off the road
 - 1) Be extra sensitive in marking private property, in particular driveways and cut lawns. Use chalk or means other than paint to locate a marker unless you have permission of the owner to use paint. Discreetly mark the drop as done for drops on a road.
 - 2) Pick up the marker and take it with you
 - 3) Move to the nearest road on a north/south or east/west line and place a spot of paint on the road edge (Hint: measure as you move, if possible)
 - 4) Label the spot on the road with the pilot's number
 - 5) Mark the drop on your map
 - 6) Draw a rough diagram of the drop on your notepad
 - 7) Measure any and all parts of the drop as early as time and crew permit; return to complete the measurement after recovery of the pilot, as necessary
 - Inaccessible drops off the road (e.g., too far, beyond tree line)
 - 1) Using a fix on the marker location, mark the road with the pilot's number to direct search and recovery later
 - 2) If practicable, leave a crew member to guard the marker (rarely accommodated)

- 3) Mark the drop on your map
- 4) Draw a rough diagram of the drop on your notepad along with landmarks associated with your fix on the marker
- 5) Continue in the chase, find, locate and measure the drop after recovery of the pilot

- Drops in unusual circumstances

- 1) If getting a marker involves wading through swamps, streams, or rivers, or climbing trees, let the pilot and crew do it!

- 2) Contest landing (Rule 11.2)

- Mark final resting place of basket
- Closest corner of basket “footprint” (even if tipped) to the goal

5.6. Measuring the drop

5.6.1. Intersection that you measure to must be on the map

- Minor road intersections or minor road intersection with a railroad
- Ambiguous intersections

5.6.2. Do not measure to houses or buildings.

5.6.3. Use the most accurate method agreed to and practical in the situation:

- Tape measuring

- 1) Show a crew member the “0” mark on your tape measure and have the crew member hold that end of the tape and assist you; you read the measurement end of the

tape!

2) If you have to use more than a single length of tape, use some method to keep track of how many lengths were used, for example: making a hash mark in your notebook, painting hash marks on the road, or picking up stones

- Pacing

1) Do not pace with any other person

2) Pick an object in a direct line to pace toward your objective, or have crew person(s) be the object(s)

3) Count your paces, using a method of hash marks to keep track for long distances (e.g., a hash mark for each 10 paces)

4) Multiply the number of paces by your “pace factor” to get the measured distance

5.7. Recording the drop on your Observer Report Sheet

5.7.1. Unobstructed drops close to the goal

- Do a direct measurement to the goal
- Take a compass bearing to or from the goal (*desirable*)

5.7.2. Drops which cannot be measured directly to the goal

- Using a compass to follow north-south and east-west directions in your measurement from marker drop to a reference point identifiable on the map
- Measure each leg of the total measurement at right angles (90°) and keep a record in your notebook as you measure

5.8. Diagramming the measurement

5.8.1. Transfer the rough drawing in your notebook to your Observer Report Sheet using a straight edge to make lines neat and straight

5.8.2. Make sure North is clearly and correctly marked to orient your diagram

5.8.3. Show as much detail as helpful (buildings, tree-lines, road names, etc.) in understanding the drop and its measurement. Don't unnecessarily clutter your diagram.

5.8.4. Always label your measurements with the proper units of measure (meters, feet and inches, paces):

1) When pacing is used, always show number of paces for a measurement on your diagram

2) Show your work on the diagram if you convert paces to a distance measure using your pace factor, and also show your pace factor so work may be verified

5.8.5. Show any compass bearings taken and indicate either "to" or "from" the marker; these can be very helpful

5.8.6. Show the location of marks made to measure markers of other pilots included in your measurements (with measurements you have taken of them to your pilot's drop)

Remember neatness counts!

5.9. Reporting rule violations:

5.9.1. Violations of Competition Rules, such as:

- Launching too early or too late (Rules 9.7.2, 13.4)

- Not unfurling the marker to drop (Rule 12.4.1)
- Using the wrong marker (Rule 8.4.2)
- Making ground contact before making the drop (Rule 11.4.1)
- Flying too low, taking-off, or landing in a PZ (Rule 7.5)

5.9.2. Violations of FAA Regulations, such as:

- Flying too low over a populated (congested) area (Rule 10.7)
- Flight after sunset (Rule 11.1.3)
- Inconsiderate behavior or reckless flying (Rule 10.5)

6. Observer Etiquette

- 6.1. After a Task Briefing, stay close and don't lose your assigned pilot
- 6.2. Don't remind or advise the pilot or crew of rules or map reading at any time; except that you may assist the crew "with map-reading during the retrieve if asked to do so . . . , at their responsibility."
- 6.3. Be courteous and professional at all times
- 6.4. Be careful of your casual conversations in public regarding the competition
- 6.5. Note that these behaviors are **NOT** appropriate:
 - 6.5.1. Telling the pilot/crew where good launch/landing sites are
 - 6.5.2. Telling pilot s(he) has chosen an invalid launch site or goal
 - 6.5.3. Telling pilot/crew members how to do their jobs
 - 6.5.4. Showing partiality to any pilot (i.e., "buddying up")
 - 6.5.5. Socializing or taking pictures excessively during a flight

7. Simulated Marker Drop Exercises

- 7.1. As pacing may be used (usually not within 200 meters) to measure a marker drop, you'll first go to the Pace Course and walking the course in both directions you'll determine your own Pace Factor as will be described for you.
- 7.2. Next, you will measure simulated drops involving a direct measurement to a goal and a "triangulated" or indirect measurement to a reference point at a distance from the intended goal.
- 7.3. Then you will complete your Observer Report Sheet adding the diagrams and all important information needed to record both drops above and their results.
- 7.4. Finally, you will report to the Operations Center for a **"Mock" Debriefing** of selected Observer reports.

8. Anatomy of a Hot Air Balloon

- 8.1. A pilot's explanation of basic parts of a hot air balloon is given.
 - 8.1.1. Basket
 - 8.1.2. Propane tanks
 - 8.1.3. Burners
 - 8.1.4. Uprights & instruments
 - 8.1.5. Envelope
 - 8.1.6. Vents
 - 8.1.7. Cables
- 8.2. A pilot's explanation of expectations of an observer during launch, flight, and landing.

Glossary of Terms

Balloon Event	An event is comprised by a series of tasks set over one or more days where a winner is declared.
Chief Observer or Observer Coordinator	The competition official to whom observers appointed during a balloon event are responsible and from whom pilot assignments are received.
Event Director or Balloonmeister	The person who has operational control of all flight activity at a balloon event.
Flags	Various colored flags used as signals to control the launch of balloons at a balloon event.
Goal	A distinct feature shown on the competition map, set by the officials or chosen by the pilot, usually the intersection of two minor public roads or a railroad track and a public road.
Marker (or Baggie)	A weighted streamer supplied by the organizer of a balloon event for a given task.
Master Briefing	A general meeting of pilots, crew, observers, and other officials involved in a balloon event and conducted at the beginning of the event by the Event Director, who reviews rules, procedures, and the schedule of events and answers questions.
Official Notice Board	An announced location where all official notices are posted.
Safety Officer	An official who assures the flying at a balloon event is conducted safely.
Scoring Officer or Chief Scorer	An official who is responsible for the fair and proper assignment of scores for tasks flown at a balloon event.

Signals Point	A point at the launch area at which flag signals may be displayed and pilots' task declarations, late entries and supplementary briefings take place.
Target	A prominent 'X' made from a bright contrasting colored material in the form of a rectangular cross and displayed in the vicinity of a goal or at specified coordinates.
Task	A competitive challenge, either single or multiple, which is set by the Event Director for the pilots to fly on a given day.
Task Briefing	A meeting called by the Event Director for pilots and crew and attended by observers and other officials to specify a task(s) for a flight, provide weather information, and answer questions.

Proper Decorum for Observers

“Observer Professionalism”

Some statements that should *not* be made during the . . .

drive to the launch field:

“I know this nice field down the next road and the lady that owns it says balloons can take off anytime they want to.”

launch:

“Your declared goal is not valid and you’ll be disqualified.”

“You know, this is too close to the target to be a valid launch.”

flight:

“Maybe you should fly a little higher to catch that other wind.”

“Maybe you should fly a little higher to avoid that PZ.”

search for the marker:

“You know, if you had taken off in the field where I thought you should have, we wouldn’t be out here looking for this lost marker.”

packing the balloon:

“I can tell you an easier way to pack the envelope and burner.”

completion of the Observer Report Sheet:

“I don’t know exactly where you took off from, but we’ll figure it out during debriefing.”

Some common errors and how to avoid them:

Asking questions during the Master Briefing and Task Briefings. *Don’t do it!*

Picking up the marker of some other pilot. *Don’t do it!*

Insisting that you sit in the front seat. *You don’t need to, but you can insist on sitting next to a window.*

Asking the pilot the “N number” of the balloon. *Read it from the envelope.*