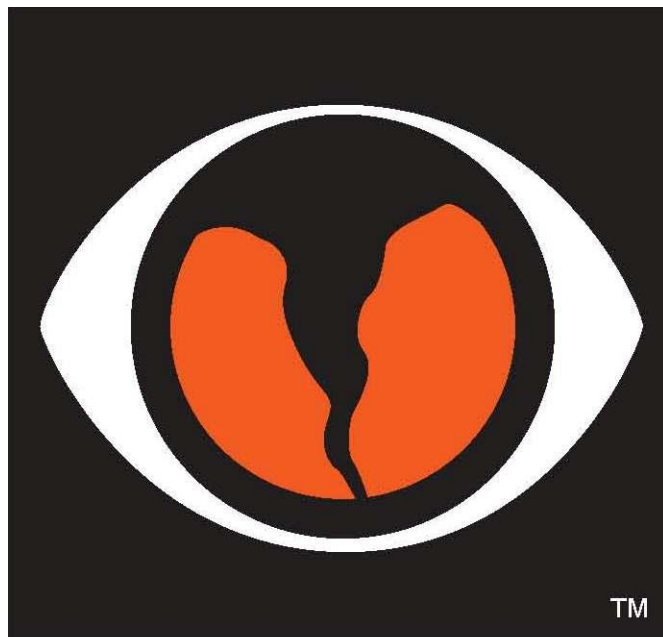


IMO SKYWARN

Quadrant Two Operations Manual



SKYWARN
WEATHER.GOV

Table of Contents

- Table of Contents 3
- Purpose..... 5
- About IMO SKYWARN® 5
 - Quadrant Two..... 5
 - Allen County, Indiana SKYWARN 6
- Quadrant Two Operations 6
 - Operation Modes 6
 - Standby Mode 6
 - Directed Net..... 7
 - Spotter Procedures..... 7
 - Reporting Criteria 7
 - Standby Mode..... 7
 - Directed Net..... 8
 - Net Control Operator Procedures..... 8
 - Procedures Common to Both Modes 8
 - Standby Mode..... 10
 - Directed Net..... 10
- Appendix One — Spotter Quick Reference 13
 - Reporting Criteria..... 13
 - Report Elements..... 13
 - Making Contact during Standby Mode..... 13
 - Contacting Net Control during a Directed Net 13
- Appendix Two – Net Control Operator Quick Reference..... 14
 - Administration Frequency 14
 - Standby Mode 14
 - Directed Net..... 14
 - Normal Mode..... 14

Purpose

The purpose of this document is to provide information about IMO SKYWARN and the procedures used at the quadrant level in IMO SKYWARN Quadrant Two.

About IMO SKYWARN®

SKYWARN® is a volunteer program of the National Weather Service (NWS), part of the U.S. Department of Commerce. Nearly 290,000 trained, volunteer severe weather spotters help keep their local communities safe by providing timely and accurate reports of severe weather to the National Weather Service. Many (but not all) of these spotters are federally-licensed Amateur Radio operators who use their radios to make their reports.

IMO SKYWARN is an organization of Amateur Radio operators in the 37 Indiana, Michigan and Ohio counties served by the Northern Indiana NWS weather forecast office (WFO). The Northern Indiana WFO is located near North Webster, Indiana and is also known by its three-letter identifier, IWX. IMO SKYWARN created and conducts Amateur Radio networks to facilitate the timely relay of SKYWARN spotter reports via Amateur Radio to WFO IWX. It also provides staffing for an Amateur Radio station located at WFO IWX. The station uses the call sign WX9IWX.

To provide efficient relay of spotter reports, IMO SKYWARN divided the IWX county warning area (CWA) into four quadrants (see figure 1). Each quadrant has a Quadrant Leader who acts as liaison between the IMO leadership team and respective SKYWARN groups in each of the quadrant's counties.

Quadrant Two

IMO SKYWARN Quadrant Two includes seven Indiana counties and four Ohio counties in the southeastern portion of the IWX CWA. Indiana counties include Adams, Allen, Blackford, Huntington, Jay, Wells and Whitley. Ohio counties include Allen, Paulding, Putnam and Van Wert.

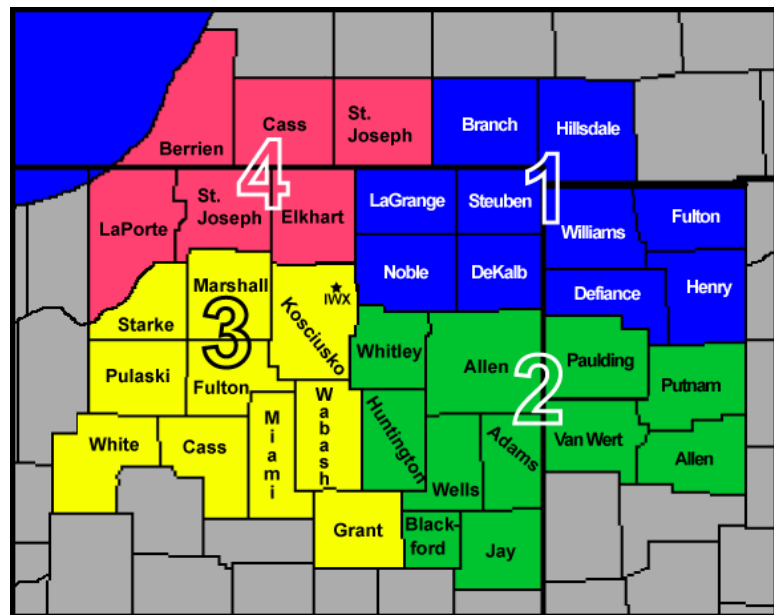


Figure 1 IMO SKYWARN Quadrants

The primary SKYWARN repeater for Quadrant Two is the W9INX repeater on 146.88 MHz, located in Fort Wayne, Indiana. The repeater is owned and operated by the Allen County Amateur Radio Technical Society (ACARTS). Should the W9INX 146.88 MHz repeater be unavailable during periods of severe weather, Quadrant Two will use its secondary repeater: the W9TE 146.76 MHz repeater in Fort Wayne, owned and operated by the Fort Wayne Radio Club (FWRC).

The Quadrant Two Leader appoints experienced Amateur Radio operators to serve as SKYWARN net control operators (NCOs). These NCOs will facilitate the on-air operations at the quadrant level during periods of severe weather. In the absence of a designated NCO, any station may fill the NCO role. Only designated NCOs, however, are informed of control codes that affect repeater operations.

The Quadrant Leader may designate a repeater or frequency, separate from the primary and secondary repeaters, as an administrative channel. NCOs will use the administrative channel for communications such as coordinating NCO changes on the primary frequency.

Allen County, Indiana SKYWARN

Because the Quadrant Two primary and secondary repeaters are located in Allen County Indiana, they concurrently serve as the primary and secondary repeaters for the local Allen County SKYWARN net. A separate Allen County net may be established on a different frequency, however, when the situation and resources warrant doing so (see Net Control Operator Procedures, below).

Quadrant Two Operations

Operation Modes

IMO SKYWARN Quadrant Two operates in one of two modes:

- **Standby Mode:** Severe weather is present or imminent in any of the quadrant's 11 counties, but a directed net is not required.
- **Directed Net:** Severe weather is present in any of the quadrants 11 counties and the amount of existing or expected spotter traffic requires a directed net and the suspension of normal activities on the quadrant repeater.

Standby Mode

- Typically entered when the NWS Storm Prediction Center (SPC) issues a severe thunderstorm **watch** or tornado **watch** that includes one or more of the quadrant's counties.
- May also be used when a severe thunderstorm **warning** or tornado **warning** is in effect in one or more of the quadrant's counties, if the amount of spotter traffic does not require suspension of normal repeater activity (e.g. during times of day when few spotters are on the air).
- Entered when a designated SKYWARN NCO is available to monitor the quadrant repeater and the weather situation, including NWS statements.
- Normal use of the quadrant repeater continues, but repeater users are requested to keep transmissions short and leave long gaps between transmissions.
- The repeater makes a periodic voice announcement, "weather watch" and the reset tone becomes a Morse Code "W." Note: This capability is available only on the primary, W9INX repeater.

Directed Net

- Entered when existing or expected spotter traffic requires a directed net and the suspension of normal activities on the quadrant repeater, typically when a weather **warning** is in effect in one or more of the quadrant's counties.
- Note that the issuance of a warning does *not always necessitate* a directed net. For example, if the warning only covers a county that rarely relays reports or if the warning occurs at a time of day when few spotters are on the air, a directed net will probably *not* be needed.
- As in any directed net, no station (including WX9IWX) transmits, except with at the direction of the NCO.
- The repeater makes a periodic voice announcement, "weather net" and the reset tone becomes a Morse Code "N." Note: This capability is available only on the primary, W9INX repeater.

Spotter Procedures

Reporting Criteria

Whether IMO SKYWARN is in standby mode or a directed net, spotters will limit reports made to the NWS to those weather phenomena that meet NWS reporting criteria:

- Tornado
- Funnel cloud
- Wall cloud
- Hail of any size
- Wind damage (regardless of wind speed)
- Storm-related injury or death
- Flooding

Reports to NWS should include the observer's identity (i.e. amateur call sign), time of observation, what was observed, where it was observed and other detail as necessary (e.g. direction of movement, description of damage, etc.).

Stations should refrain from relaying reports when the identity of the original observer is not known (for example, when an amateur operator hears a police dispatcher transmit a report received from an untrained member of the public).

Note that NWS does *not* need to know that a radio operator can hear a tornado siren or what the TV weather person is saying about the weather!

Standby Mode

- **Repeater usage:** During standby mode, stations may use the repeater as they normally would. They are requested, however, to keep transmissions short and leave longer than normal gaps between transmissions in case a spotter needs to make a report.
- **Requesting information or making a report:** During standby mode, spotters may request information such as the details of a weather watch or make a report by calling the active NCO in this way: "SKYWARN, this is W9ABC." A SKYWARN NCO will answer the call and facilitate the request or report.

Directed Net

- **Repeater usage:** As in any directed net, normal operations cease and stations are requested to transmit only at the direction of net control. Transmissions are limited to weather that meets NWS reporting criteria and other emergency information.
- **Contacting net control:** During a directed net, stations will call the net control station by transmitting their own call signs once, phonetically. Stations should also include one or two words to indicate the nature of the report. A typical transmission sequence would sound like this:
 - **Spotter:** Whisky nine alpha bravo charlie, wall cloud.
 - **NCO:** ABC roger, stand by. IWX?
 - **WX9IWX:** IWX.
 - **NCO:** Stand by for a wall cloud report. W9ABC, go ahead.
 - **Spotter:** Whiskey nine alpha bravo charlie observed a wall cloud at one six three zero local time one mile east of Arcola.
 - **WX9IWX:** Roger, WX9IWX, National Weather Service.
 - **NCO:** W9NCO, SKYWARN net control.

Net Control Operator Procedures

Procedures Common to Both Modes

- **Coordination with other NCOs:** Before initiating operations on the quadrant repeater, available NCOs will coordinate with each other on the administrative frequency to decide who will take the first “shift.” If an NCO puts out a call on the administrative frequency and no other NCOs answer, he/she may assume that he/she is the only NCO available at that moment. If a directed net is needed and an NCO has already activated standby mode that NCO will normally control the net until and unless another NCO relieves him. During operations, NCOs will monitor the administrative frequency as much as possible so that NCO changes, etc, can be coordinated away from the quadrant repeater.
- **Frequency and situation monitoring:** During standby mode and directed nets, the active NCO will monitor the quadrant repeater, the administrative channel, NWS weather statements and the weather situation until he is relieved, the need for SKYWARN operations ends or he must cease operations without relief.
- **Responding to calls:** NCOs will respond to calling stations by transmitting the *calling station's call sign*. For example (during standby mode), “W9ABC this W9NCO, IMO SKYWARN, go ahead.” During a directed net, “W9ABC” or simply “ABC” (see the example procedure under “Spotter Procedures,” above). During a directed net, NCO need not identify his own station until the end of the exchange.
- **Providing information:** NCOs will provide information from official NWS statements and avoid transmitting their own interpretations of the weather situation or of radar data.

- **Getting reports to WX9IWX:** NCOs will avoid, whenever possible, retransmitting a station's report. Instead, NCOs will call WX9IWX and have WX9IWX communicate directly with the reporting station. See the example sequence under "Spotter Procedures," above. If a spotter gives his entire report before the NCO calls WX9IWX, it is usually only necessary to confirm that WX9IWX copied along. If not, the NCO will have WX9IWX call the reporting station directly for any needed repeats or fills. For example:
 - **Spotter:** Whiskey nine alpha bravo charlie.
 - **NCO:** ABC?
 - **Spotter:** Whiskey nine alpha bravo charlie observed a wall cloud at one six three zero local time one mile east of Arcola.
 - **NCO:** Roger, stand by. IWX?
 - **WX9IWX:** IWX.
 - **NCO:** Did you copy W9ABC's wall cloud report?
 - **WX9IWX:** I need the time and location.
 - **NCO:** W9ABC, call WX9IWX and provide the information he needs.
 - **Spotter:** (Provides fills, identifies)
 - **WX9IWX:** Roger, WX9IWX, National Weather Service.
 - **NCO:** W9NCO, SKYWARN net control.
- **Forwarding reports in the absence of WX9IWX:** If a spotter report comes in and WX9IWX does not answer, the active NCO should do one of the following:
 - Appoint another station to relay the report via telephone or e-spotter.
 - Relay the report himself/herself via telephone or e-spotter.

In general, the most urgent reports, such as tornados, funnel clouds, etc. should be *relayed by telephone* if possible when WX9IWX is not available. The NWS spotter telephone number is often busy, leaving e-spotter as the only reliable method.

- **Transmitting NWS statements:** As the NWS issues new warnings, severe weather statements and/or special weather statements that affect one or more of the quadrant's counties, the active NCO will make transmissions that briefly summarize those statements. For example:

"This is (call sign), IMO SKYWARN. The National Weather Service has issued a severe thunderstorm warning for northeast Huntington County, in effect until (time). At (time), radar indicated a line of severe storms from (location) to (location) moving (direction and speed). IMO SKYWARN remains in (standby/directed net) mode at this time. This is (call sign), IMO SKYWARN."

NCOs and WX9IWX will avoid reading entire NWS statements verbatim, due to the time required to do so.

Standby Mode

- **Standby mode implementation:** Upon completion of the coordination step (above), the active NCO will place the quadrant repeater controller in standby mode (file two) and make an announcement similar to the following:

“Attention all stations, the National Weather Service has issued a (type of watch or warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). IMO SKYWARN is now in standby mode. Normal use of this repeater will continue but stations are requested to keep transmissions short and leave long gaps between transmissions. This is (call sign), IMO SKYWARN.”

- **Periodic NCO transmissions:** At approximately the top and bottom of each hour (i.e. every 30 minutes), the active NCO will make a brief transmission reminding stations that standby mode is in effect and why. For example:

“This is (call sign). The National Weather Service has issued a (type of watch or warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). IMO SKYWARN is in standby mode. Normal use of this repeater will continue but stations are requested to keep transmissions short and leave long gaps between transmissions. This is (call sign), IMO SKYWARN.”

NCOs will make such reminder transmissions more frequently (e.g. every 10 or 15 minutes) when the weather situation becomes more urgent (e.g. warnings are issued).

- **Standby mode termination:** When the need for standby mode ends, or when the NCO cannot continue standing watch and no other NCO is available to relieve him, the NCO will return the quadrant repeater controller to normal mode (file one).

Directed Net

- **Directed net implementation:** Upon completion of the coordination step (if necessary, see above), the active NCO will place the quadrant repeater controller in directed net mode (file three) and make an announcement similar to the following:

“Attention all stations, the National Weather Service has issued a (type of warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). This is a directed net. Stations, please transmit only at the direction of net control and limit transmissions to weather reports that meet National Weather Service reporting criteria, or other emergency traffic. To contact net control, transmit your call sign and a word or two about what you’re reporting and wait for acknowledgement. This is (call sign), IMO SKYWARN net control.”

- **Check-ins:** NCOs will *not* encourage stations to check into the net *unless* they have a report that meets NWS reporting criteria or other emergency message.
- **Handing calls from other stations:** During a directed net, the active NCO will answer any calls from other stations by transmitting *the other station’s call sign only* (or just the other station’s suffix).

- **Requests from NWS:** From time to time, WX9IWX will call with a request for observations from a particular area, per NWS meteorologist needs. When that happens, the NCO will put out a general call for any stations in the specified area. If any stations answer, the NCO will have WX9IWX communicate directly with them.
- **Establishing relay stations:** When severe weather is affecting the most distant counties in the quadrant, the NCO will attempt to find stations that can reach repeaters in those counties and act as relay stations for reports (e.g. a station in Wells County might relay for Blackford County).
- **Periodic NCO transmissions:** At least *every 10 minutes* during quiet periods, the active NCO will make a brief transmission reminding stations that a directed net is in progress and why. For example:

“This is (call sign). The National Weather Service has issued a (type of warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). This is a directed net. Stations, please transmit only at the direction of net control and limit transmissions to weather reports that meet National Weather Service reporting criteria, or other emergency traffic. This is (call sign), IMO SKYWARN net control.”

Such reminder transmissions are necessary only during quiet periods. If the net is busy with traffic, the existence of a directed net will be obvious and reminder transmissions will not be required. Also, if the net frequency remains quiet for 20 minutes, the active NCO should consider whether a directed net remains necessary.

- **Establishing a separate Allen County net:** During a directed net, the active NCO will establish a separate Allen County (Indiana) SKYWARN net on a frequency other than the quadrant net frequency under the following circumstances:
 - A high volume of traffic from spotters in Allen County is making it difficult for liaisons from other counties to send reports and
 - An alternate NCO is available to control the Allen County net and
 - A second station is available to serve as liaison between the Allen County net and the quadrant net.

The Allen County SKYWARN net will be established on the 146.76 MHz repeater or, if that repeater is unavailable, the 146.94 MHz repeater. The 146.94 MHz repeater is the primary repeater for Allen County ARES and should therefore be reserved for ARES operations whenever possible.

- **Logging and reporting:** All NCOs will record the start and end time of every directed net (or the portion of a directed net they control) as well as a list of stations who made spotter reports and the number of reports made. NCOs will send a report containing that same information to the Quadrant Leader within seven calendar days of the operation. The Quadrant Leader will compile monthly reports and send them to the IMO SKYWARN president and the Allen County Amateur Radio Emergency Service (ARES) emergency coordinator.
- **Directed net termination:** When the need for a directed net ends, the active NCO will return the quadrant repeater controller to either standby mode (file two) or normal mode (file one), depending on the situation. NCOs should remember that IMO SKYWARN remains responsible for any spotter reports that might come from any of four counties in Ohio.

Appendix One — Spotter Quick Reference

Reporting Criteria

- Tornado
- Funnel cloud
- Wall cloud
- Hail of any size
- Wind damage (regardless of wind speed)
- Storm-related injury or death
- Flooding

Report Elements

1. Observer identification
2. Time of observation
3. Type of event
4. Location
5. Damage (if any)
6. Duration
7. Size of hail (if reported)
8. Direction of movement
9. Wind speed (if damage observed) and whether measured or estimated
10. Injuries/fatalities (if any)
11. Flooding (if any)

Making Contact during Standby Mode

“SKYWARN, this is (call sign phonetically).”

Contacting Net Control during a Directed Net

(Your call sign phonetically), (report type), e.g. “Whiskey nine alpha bravo charlie, wind damage.”

There is no need to address net control during a directed net, just use your own call sign.

Appendix Two – Net Control Operator Quick Reference

NCO's will fill in the blanks below on their own copies.

Administration Frequency

Standby Mode

- **Repeater code:** _____
- **When to use:** When a watch or warning is issued that affects any county in the quadrant, an NCO is available to monitor the frequency and when traffic volume does not necessitate a directed net.
- **What to say:**

“Attention all stations, the National Weather Service has issued a (type of watch or warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). IMO SKYWARN is now in standby mode. Normal use of this repeater will continue but stations are requested to keep transmissions short and leave long gaps between transmissions. This is (call sign), IMO SKYWARN.”

Directed Net

- **Repeater code:** _____
- **When to use:** When a warning is issued that affects any county in the quadrant *and* traffic volume necessitates a directed net. Some warnings do not require a directed net.
- **What to say:**

“Attention all stations, the National Weather Service has issued a (type of warning) for the following counties in IMO SKYWARN Quadrant Two: (list counties), effective until (expiration time). This is a directed net. Stations, please transmit only at the direction of net control and limit transmissions to weather reports that meet National Weather Service reporting criteria, or other emergency traffic. To contact net control, transmit your call sign and a word or two about what you're reporting and wait for acknowledgement. This is (call sign), IMO SKYWARN net control.”

Normal Mode

- **Repeater code:** _____
- **When to use:** When no watches or warnings are in effect for any county in the quadrant.
- **What to say:**

“This is (call sign), IMO SKYWARN. No watches or warnings are in effect anywhere in Quadrant Two. We now return the repeater to normal operation and thank all stations for their cooperation. Please standby for control input (enter code).”