



# The Ka-31: Russia's Airborne Early Warning Helicopter

**OE Watch Commentary:** Russia's Ka-31 reconnaissance helicopter is designed to detect surface and aerial targets, including missiles. It reportedly has a detection range of approximately 200 km, and is designed to automatically transmit aerial and surface adversary location data to ground-based command and control posts, ships, and automated air defense command and control systems. As the accompanying excerpted article from *Izvestia* notes, "the heart of the helicopter is its ultra-powerful radar" that is slung under the fuselage, and appears to be an air-based version of Russia's 'Nebo' series radars. The E801 Oko radar was designed by the NIIRT Scientific Research Institute of Radio Engineering of Nizhniy Novgorod. When parked or in transit, the 1 x 6 meter antenna is towed flat against the underside of the fuselage, but during operation the antenna is lowered and rotates 360-degrees about its axis. As noted in the article, the Ka-31 is now entering service with the Black Sea Fleet's 318th Composite Aviation Regiment, and a variant has been tested in Syria. **End OE Watch Commentary (Bartles)**

## Ka-31 Radar Performance Specifications

**Operating band:** Decimetric

**Coverage:**

Range: 7 - 250 km

Altitude: 5 - 3,500 m

Azimuth: 0 - 360°

**Detection range:**

A fighter-type target over sea and land: 120-210 km

A launch-type target on sea surface at sea state up to 5: 250 km

**Resolution:**

Range: 500 m (worst case)

**Number of simultaneously tracked targets:** Up to 400

**Update rate:** 10s

**Antenna rotation rate:** 6 rpm

**Turn-on time:** 5 min

**Antenna deploy-retract time:** 80s

***“The Ka-31R reconnaissance helicopter was designed from the outset to detect surface and aerial targets, including Harpoon missiles. It can also automatically transmit data on the aerial and surface environment to ground-based command and control posts, ships, and automated air defense command and control systems.”***



Ka-31.

Source: Vitaly Kuzmin via Vitalykuzmin.net, <https://www.vitalykuzmin.net/Military/MAKS-2007/i-MTKRJ5j/A>, CC BY-NC-ND 4.0



## Continued: The Ka-31: Russia's Airborne Early Warning Helicopter



**Source:** Aleksey Ramm and Anton Lavrov, “Сильное звено: новейшие вертолеты закрыли Черное море от кораблей НАТО (The Strongest Link: Advanced Helicopters Protect the Black Sea Against NATO Ships),” *Izvestia Online*, 12 December 2019. <https://iz.ru/953338/anton-lavrov-aleksei-ramm/silnoe-zveno-noveishie-vertolety-zakryli-chernoe-more-ot-korablei-nato>

### ***The Strongest Link: Advanced Helicopters Protect the Black Sea Against NATO Ships***

*The first Ka-31R reconnaissance helicopter has already entered service with the Black Sea Fleet's 318th Composite Aviation Regiment, Izvestia sources in the military reported. The Navy's commander, Nikolay Yevmenov, announced earlier that naval aviation crews have already begun familiarizing themselves with the new equipment. The plan is to deploy a flight of these long-range radar surveillance helicopters in Crimea next year. The Ka-31R reconnaissance helicopter was designed from the outset to detect surface and aerial targets, including Harpoon missiles. It can also automatically transmit data on the aerial and surface environment to ground-based command and control posts, ships, and automated air defense command and control systems. The heart of the helicopter is its ultra-powerful radar, the exact specifications of which have not been disclosed. All we know is that the picture quality from the radar is as good as Ultra HD. And it can operate round the clock in any weather.*

*Another function will be to issue target guidance for Russian anti-ship missiles. It can home Kalibr and Onyx missiles to their targets in real time and the hypersonic Tsirkon has been recently added to its arsenal. Target guidance assisted by a helicopter with long-range radar makes for greater likelihood of a direct hit and increases the lethality of a salvo...*

*The first naval Ka-31R was handed over in 2012 to the Russian Navy Warfare and Flight Personnel Training Center in Yeysk. The Ka-31SV ground-based version, designed for the Aerospace Forces and carrying a ground target detection radar, was tested in actual combat conditions in 2016. Syrian aircraft spotters published photographs of it flying in the area of Latakia. At least one naval Ka-31R, with the side number 90 in red, was seen aboard the aircraft-carrying cruiser Admiral Kuznetsov during its voyage to the Syrian coast in 2016-2017. Having been baptized in combat, the helicopter was shown to the general public for the time in 2018, during the airborne part of the naval parade in Saint Petersburg...*