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The Jones Group Earthworks (33PI1347): A Newly Discovered Earthwork Complex in Pickaway County, Ohio

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In 2012 Google Earth posted a new round of aerial photos covering the heart of earthwork country in south-central Ohio. This new batch of aerials was taken in June, which is the perfect time of year for observing southern Ohio earthworks from the air. Winter wheat is maturing in early June and other crops are starting to gain some height. Any unusual stress to the plants at this time, such as a lack of moisture, causes most of the plants to grow slower or turn brown in color--plants growing in soils with more moisture stay green. For earthwork researchers, this effect is ideal because earthwork ditches hold moisture and the plants growing in them stay green during dry weather, creating distinctive crop marks. In 2007 I had the good fortune to observe the effects of differential soil moisture at the Steel Group, where a number of previously unknown enclosures were visible as crop marks in the differentially maturing winter wheat (Burks 2014). Ultimately, magnetic survey showed that the site contained nine new enclosures (Burks and Cook 2011), in addition to the two previously documented by Squier and Davis (1848).

An email from a friend and fellow earthwork enthusiast, Harry Campbell, alerted me to the new 2012 Google Earth images. Harry had spotted some very interesting crop marks at known sites that showed up marvelously in the 2012 aerials (e.g., Shriver Circle) and crop marks at some other possible earthworks that had never been documented. One of the previously undocumented sites, a very distinctive medium-sized circle, is located in northern Ross County (Figure 1). The crop mark we see in the aerial photo is the earthwork's ditch, measuring about 90 m in diameter. Unfortunately the earthwork's outline is incomplete and we cannot see where the gateway is located, except it clearly is not pointing toward the east. A planned magnetic survey of this site later this year should reveal the complete shape of this new enclosure.

The second earthwork site Harry spotted is in southern Pickaway County, close to the Pickaway County airport (Figure 2). At first glance, the crop marks at this site are less distinct but certainly suggest the presence of a circle or squircle (square with rounded corners).

This spring curiosity about the crop marks near the Pickaway County Airport finally got the best of me, and a friend, Ken Speakman, helped me to secure access to do some magnetic survey with Ohio Valley Archaeology, Inc.'s Foerster Instruments Ferex 4.032 DLG 4-probe fluxgate gradiometer (Figure 3). Time was short as planting was about to occur. Prolific spring rains also limited possible survey time, but over the course of three short visits and with the help of Kellie Locke-Rogers and Harry Campbell, I managed to cover enough ground to confirm Harry's aerial photo observation--Pickaway County has another new/ancient earthwork site.

Figure 1. A previously undocumented earthwork enclosure in northern Ross County, Ohio spotted by Harry Campbell in a 2012 aerial photo on Google Earth, with the contrast-enhanced Google Earth image (left) **and the same image converted to black and white with contrast enhancement** (right)**.**

The new Pickaway County site, which I am calling the Jones Group Earthworks, consists of at least two enclosures (Figure 4) sitting at or near the edge of the bluff overlooking the Scioto River and just upstream from the river's confluence with Scippo Creek (Figure 5). In the magnetic data we can see that the distinctive, circular crop mark noticed on Google Earth by Harry Campbell is a slightly imperfect circle with an interior ditch diameter measuring 62 m x 65 m. The light-colored ring encircling the ditch is the base of the enclosure's embankment wall, which is about 7-8 m wide. A 10m-wide gateway points to the southeast at an angle of about 106.2 degrees east of UTM north[1], and almost directly toward the mouth of Scippo Creek. There are several small magnetic anomalies within the enclosure that could be internal features, but overall the inside of the main circle is fairly clean of magnetic archaeological features.

About three quarters of the second enclosure at the Jones Group has been eroded away by the wanderings of the Scioto River. This may be a circle or perhaps a squircle. If a circle, it would be about 50 m in diameter on the inside edge of the ditch. The visible remains of the embankment wall in the magnetic data are about 6-7 m wide.

In addition to the two enclosures that appear in this spring's magnetic data, the northeast portions of a possible square are also visible in at least two aerial photographs of the site (Figure 6). The main circle is quite clear in the 1938 USDA aerial photo, making one wonder how this earthwork complex avoided discovery and documentation for so long. In the 2012 Google Earth image, the main circle and a hint of the second enclosure from the magnetic data are both visible, as is a portion of the possible large square. The possible square is also visible in the 1964 USDA aerial. The visible portions of the possible square measure at least 135 m east-west by 200 meters north-south, and there may be a gateway (ca. 19 m wide) present on the square's east side. In the 2012 aerial photo the possible square is light colored while the main circle's ditch is darker in

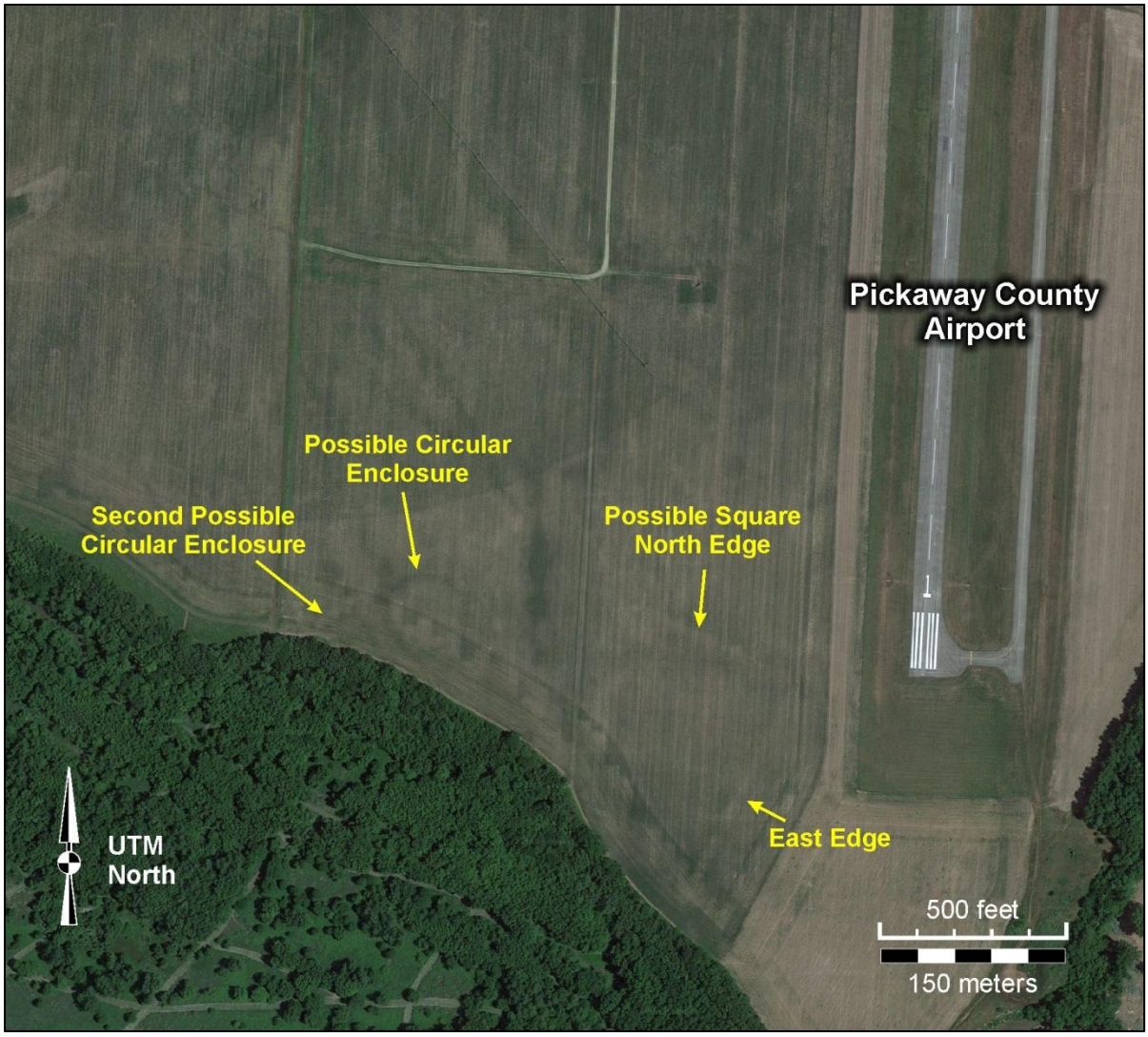

Figure 2. A previously undocumented earthwork enclosure in southern Pickaway County, Ohio identified by Harry Campbell in a 2012 (aerial photo from Google Earth).

color. This suggests that the square may be an embankment unaccompanied by a ditch. Further geophysical survey will be necessary to confirm the presence of this possible square.

Just how many more undocumented earthworks are present in Pickaway County and beyond is becoming an exciting question. The Jones Group is the second undocumented earthwork site found in Pickaway County in the last decade (the other was found at the north edge of the county in 2007, see Burks and Cook 2011; Nolan et al. 2008). If we are to find more of these sites, remote sensing (i.e., aerial imagery and geophysical survey data) clearly is the way to go. In 1934 aerial reconnaissance pioneer Dache Reeves ushered in a new age of remote sensing in Ohio archaeology (e.g., Reeves 1936a, 1936b), taking hundreds of aerial views of Ohio earthworks that now reside in the Smithsonian's National Anthropological Archives. Reeves even discovered a previously unpublished portion of the Newark Earthworks (Reeves

Figure 3. The magnetic survey of the Jones Group underway in the spring of 2015 (photo taken by Kellie Locke-Rogers)**.**

1936b). Online remote sensing resources such as Google Earth and Earth Explorer (the U.S. Geological Survey's online aerial photo archive) are making it ever easier to access a wealth of new and archived aerials, allowing us all to be aerial earthwork explorers like Dache Reeves.

It's high time that earthwork scholars conduct systematic surveys of these aerial resources. No doubt many more unknown Ohio earthworks await discovery. And I would argue that all cultural resource management projects involving Phase I surveys also should be reviewing modern and archived aerial photographs. Short of conducting geophysical surveys of all Phase I project areas, aerial photos represent our best chance at identifying more undocumented ancient monuments ahead of the bulldozer.

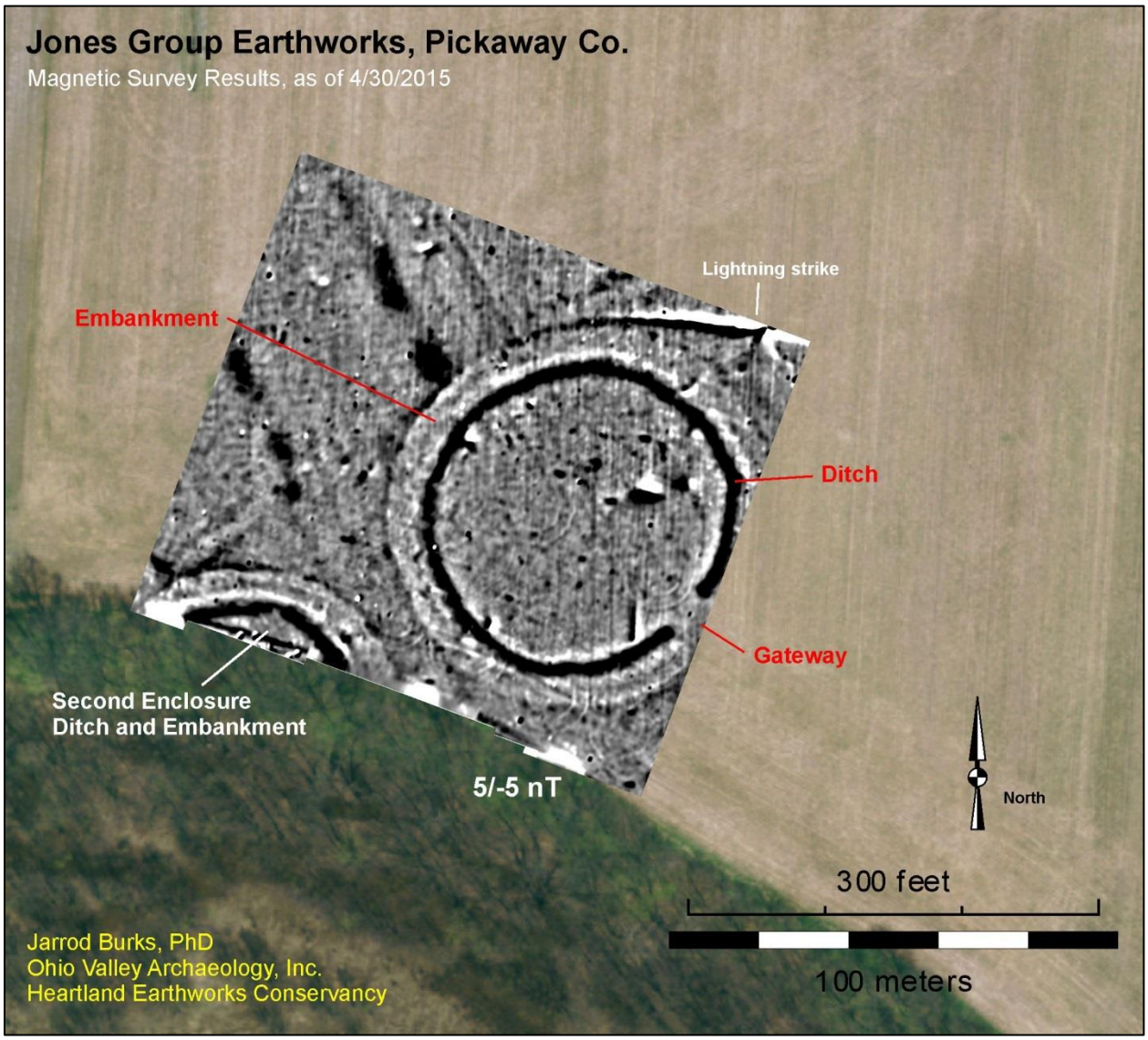

Figure 4. Magnetic data showing the results of the Jones Group survey as of spring 2015.

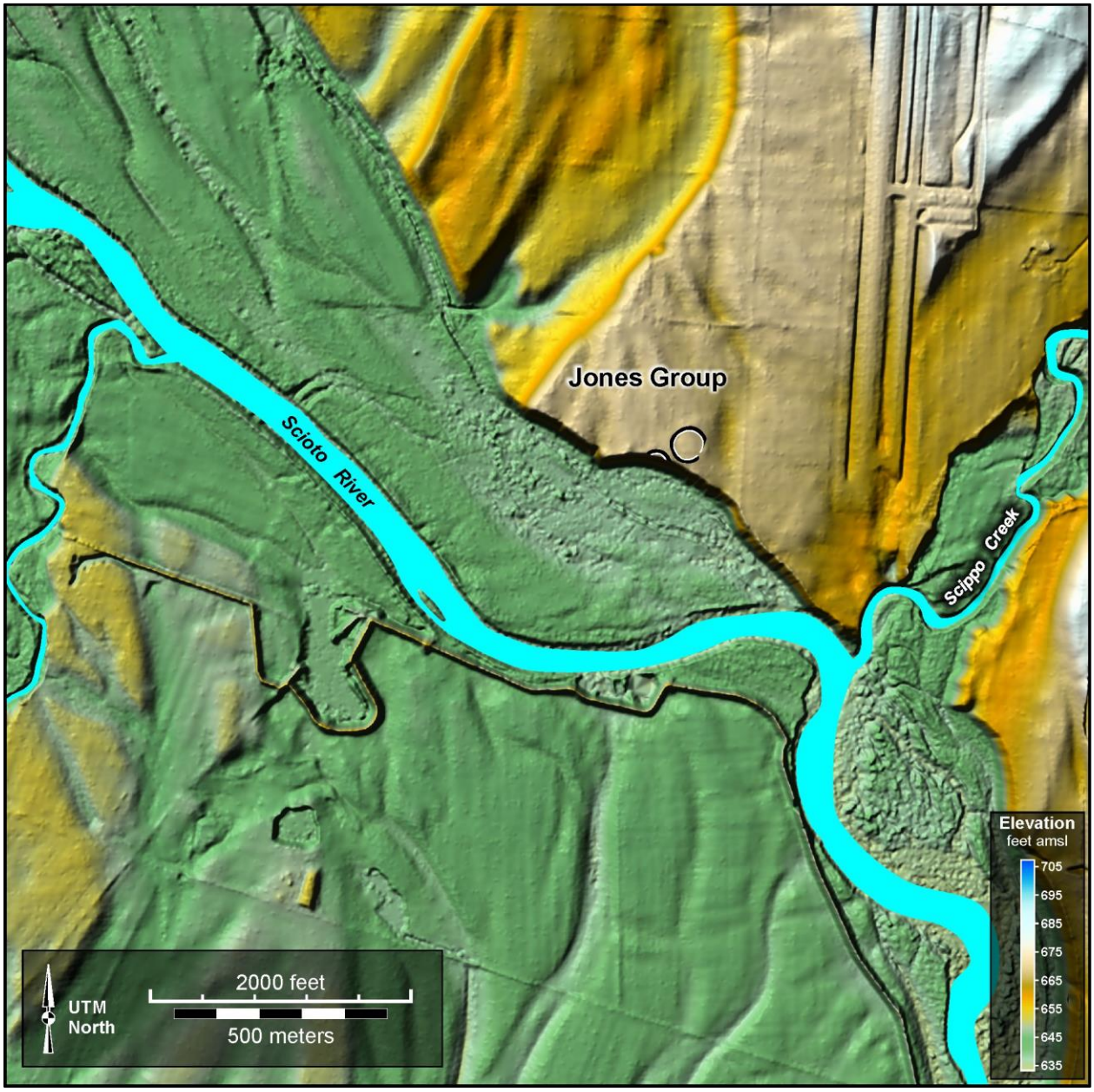

Figure 5. A LiDAR-based digital elevation model showing the topographic context of the Jones Group.

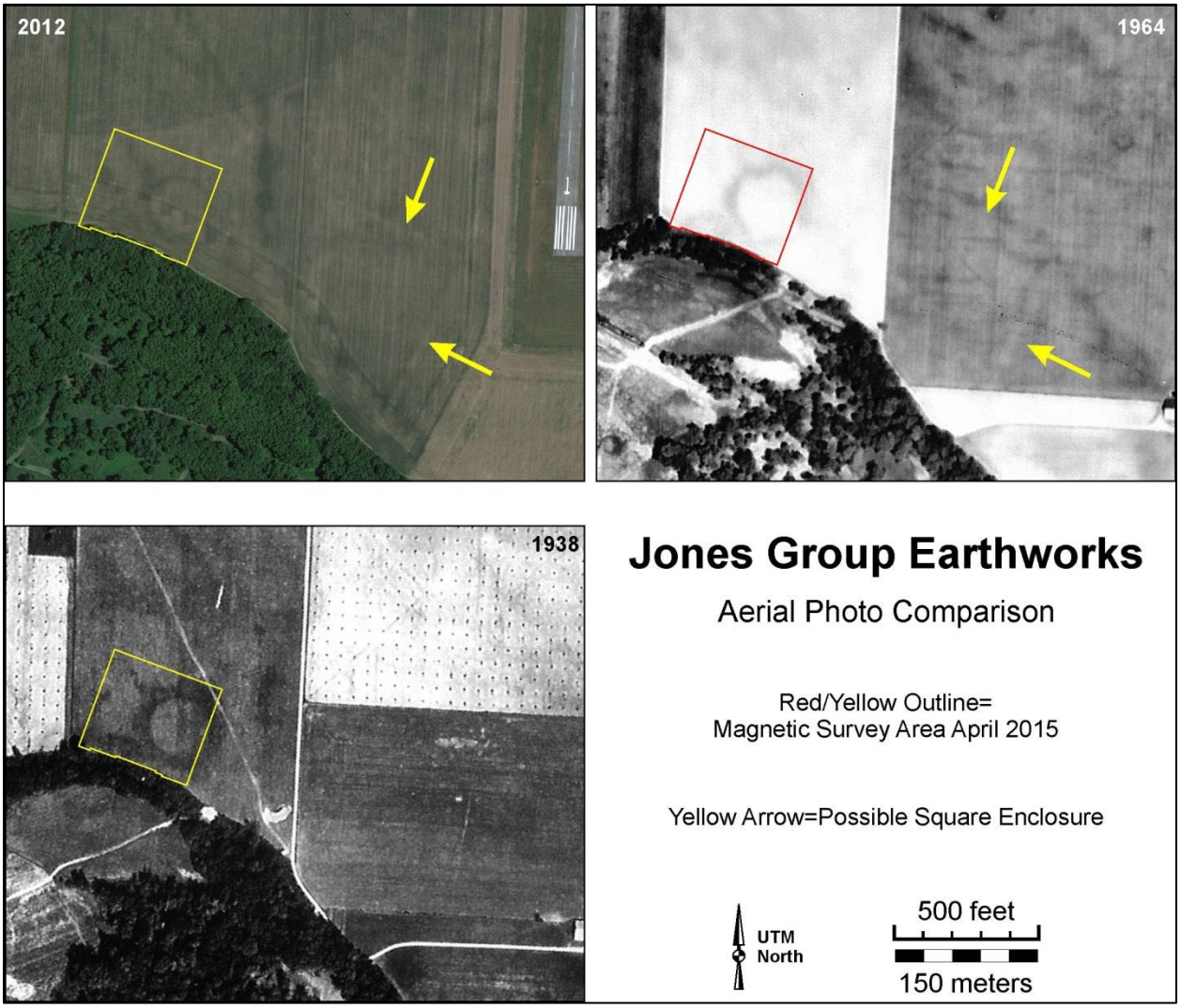

Figure 6. A series of aerial photographs showing the Jones Group, including the main circle, the eroded enclosure, and a possible square (1938 and 1964 aerial source: USDA via the USGS's Earth Explorer website)**.**

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[1] This angle is relative to UTM zone 17 north, which was derived through georeferencing the site grid using a Trimble GeoXT global positioning system (a submeter GPS system). Each grid corner is an average of at least ten realtime-corrected positions.