

Hunting Hot Spots with FLIR

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During my visit to Whistling Straits for the 97th PGA Championship I was able to test out a piece of technology that can further improve water management on golf course turf; especially as we strive for firmer and faster conditions. I was able to show that Forward Looking Infrared technology (FLIR) can find hot spots before they are visible. FLIR technology (thermal cameras) has been around for a while. But like TDR probes, which were extremely expensive a decade ago, the price of FLIR camera has come down sustainably. Now these cameras can be easily attached to a smart phone for less than \$375. I've added a [new video](#) explaining how to use this technology to scout soil moisture our [YouTube channel](#).

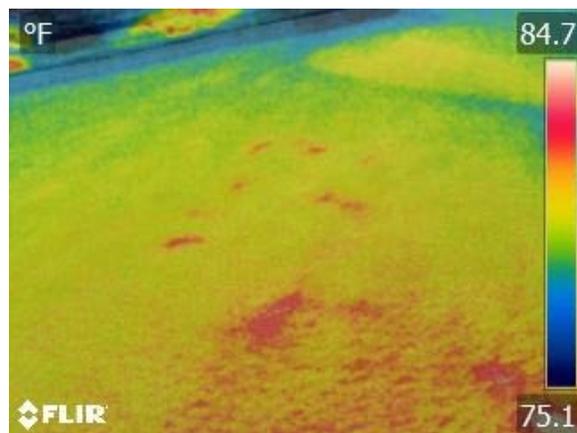
Here are a few tips successfully use FLIR technology to find dry spots.

- **Be sure to manually set the temperature range.** The default auto-scaling feature looks cool but makes it impossible to scout for subtle differences in surface temperature. Set the low and high temperature ranges a few degrees below and above the average temperature of the well-watered turf.
- **Temperature differences are only obvious when it's sunny.** FLIR won't detect hot spots early in the morning or late afternoon when the sun angle is low. Differences won't be obvious on days with heavy overcast or fog/mist.
- **Steep slopes can be deceiving.** Slopes that face the sun will be warmer than a flat area. Confirm soil moisture with a TDR probe.
- **Turf impacted by root diseases will appear hot** (summer patch, take-all patch, and pythium root rot/dysfunction), but the soil may not be dry. Check the soil moisture. FLIR can be a great way to find those areas and help keep them alive during summer.

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Visually, it is difficult to tell that this area is drying down. Hot spots are developing that will appear blue-purple in several hours.



Hot spots can be seen in this FLIR image. Soil moisture in those spots was a few percentage points above the soil wilt point.