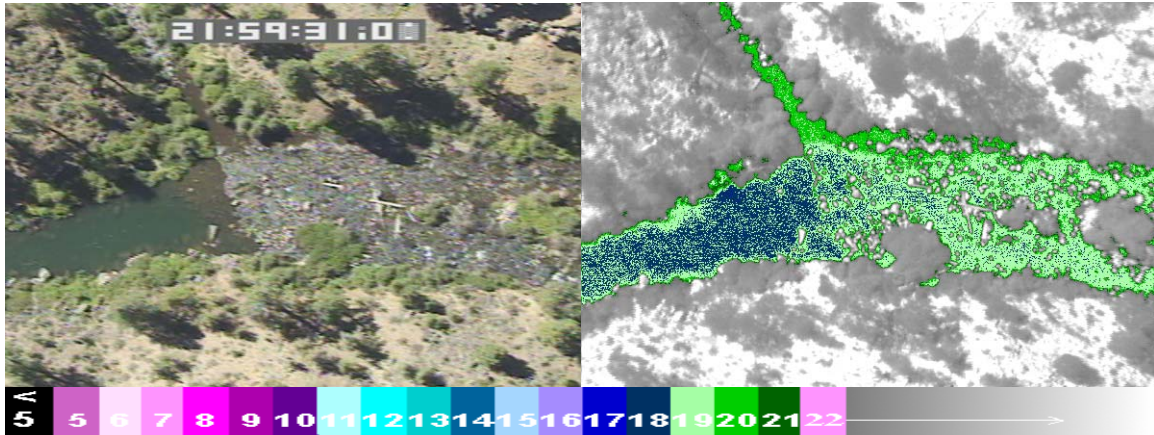
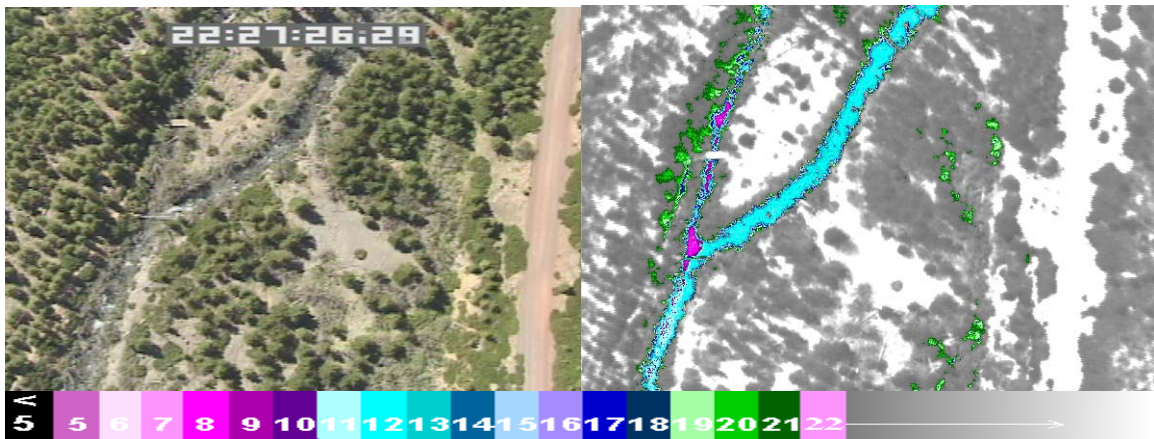


## Appendix A – Selected Images

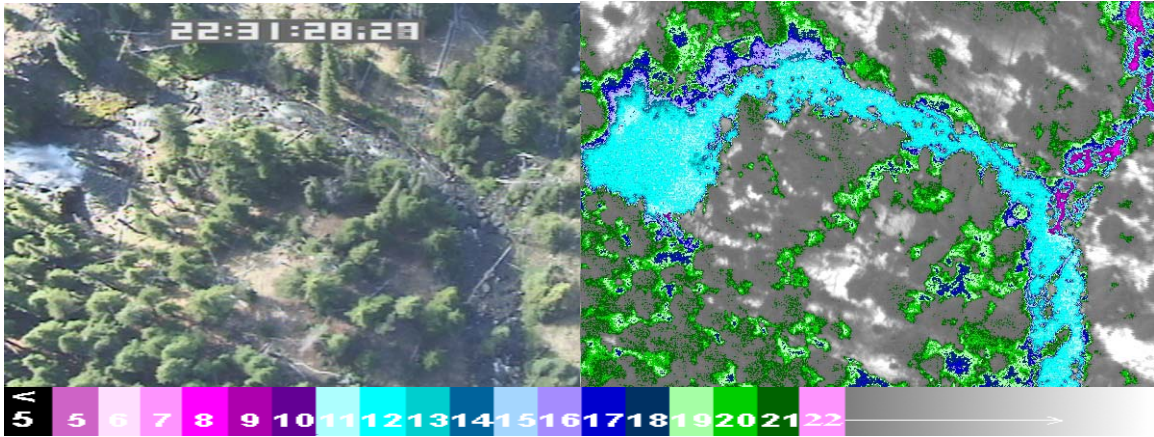
### *Tumalo Creek*



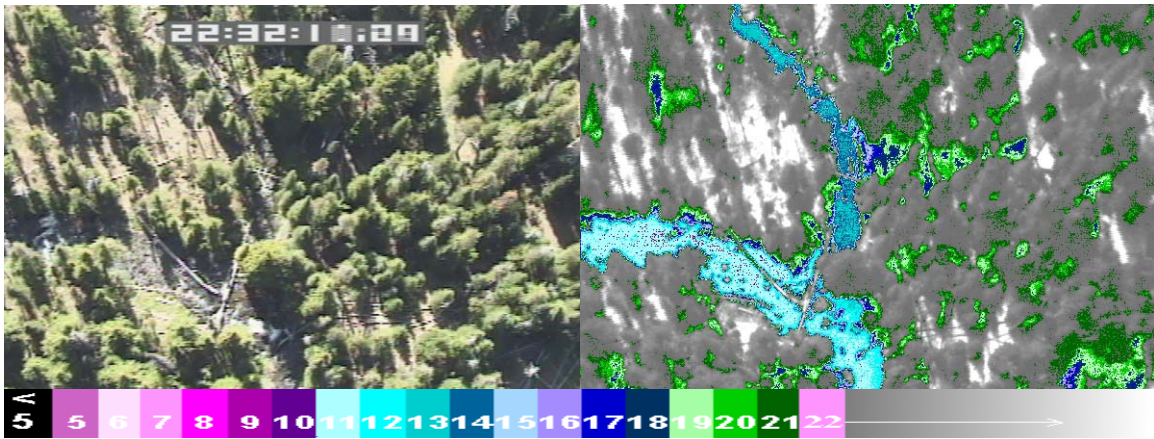
Frame: tum0071 – This image pair shows the confluence of Tumalo Creek (20.2°C) and the Deschutes River (18.7°C). The Deschutes River flows from left to right in the image and Tumalo Creek flows in from the top of the image.



Frame: tum0845 – This image pair shows the confluence of Bridge Creek (8.4°C) to the right bank of Tumalo Creek (12.6°C) at river mile 14.7. Flow direction is from the top to bottom of the image.



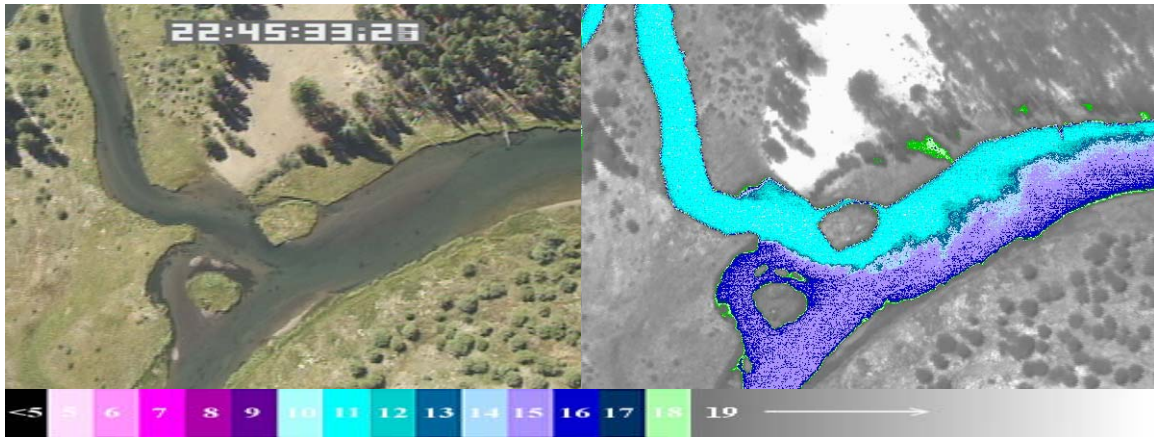
Frame: tum0966 – These images show the confluence of Bottle Creek (9.3°C) to the left bank of the Tumalo Creek (12.4°C) at river mile 16.7. Flow direction is from the top to bottom of the image.



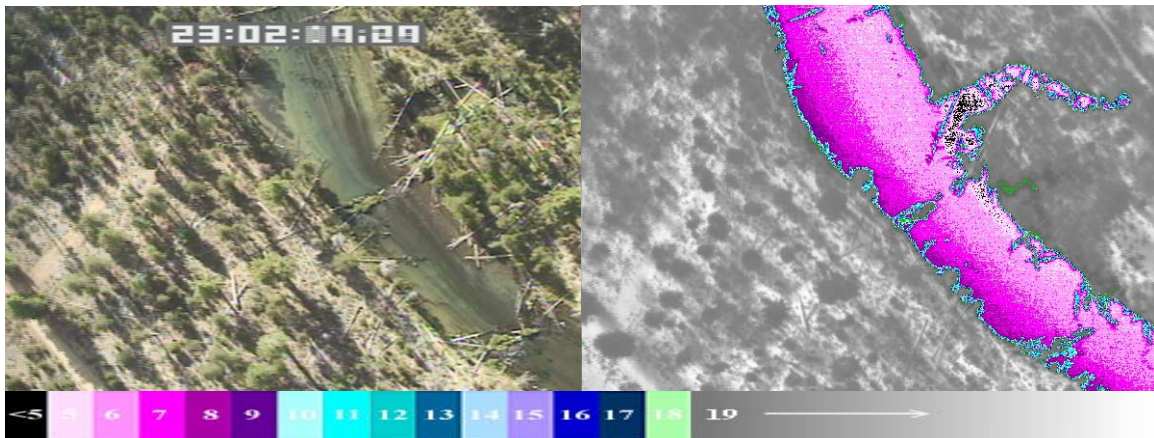
Frame: tum0987 – At river mile 17.0, the North Fork of the Tumalo Creek (13.7°C) joins the Tumalo Creek (11.7°C). Flow direction is from the top to bottom of the image.



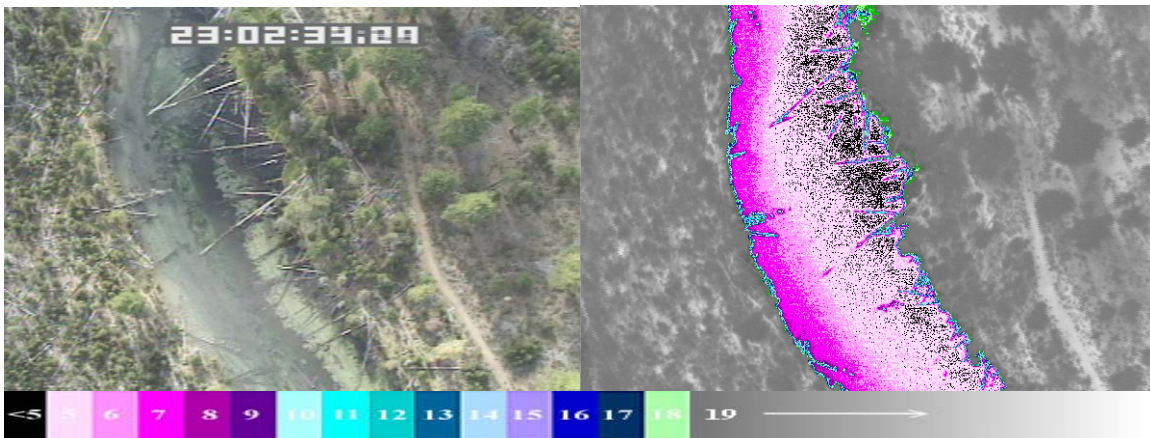
## *Fall River*



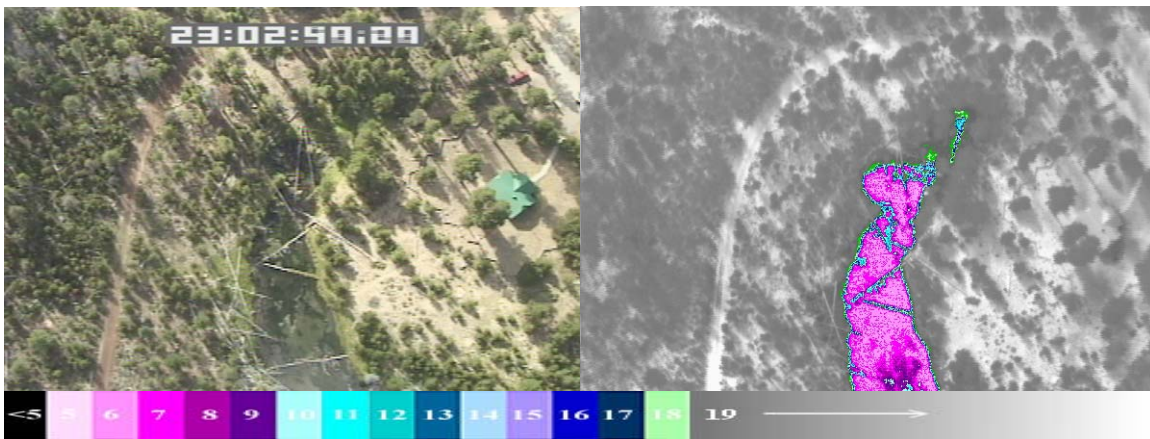
Frame: fall0024 – This image pair shows the confluence of Fall River (11.4°C) and the Deschutes River (15.7°C). The Deschutes River flows from left to right in the image and the Fall River flows from the top to bottom of the image.



Frame: fall0522 – This image pair shows a spring (4.8°C) on the left bank of Fall River (6.6°C) at river mile 10.7.



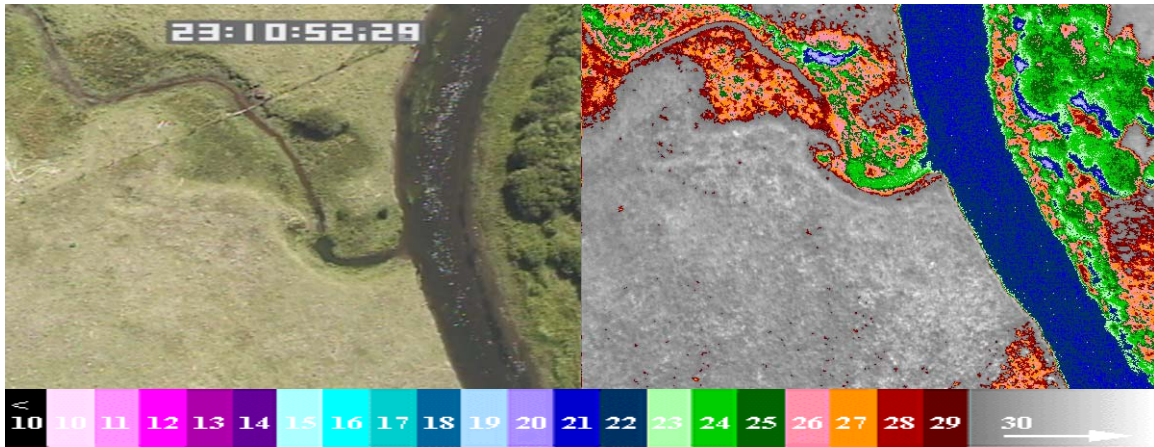
Frame: fall0534 – This image pair shows another spring (5.0°C) on the left bank of Fall River (6.3°C) at river mile 11.



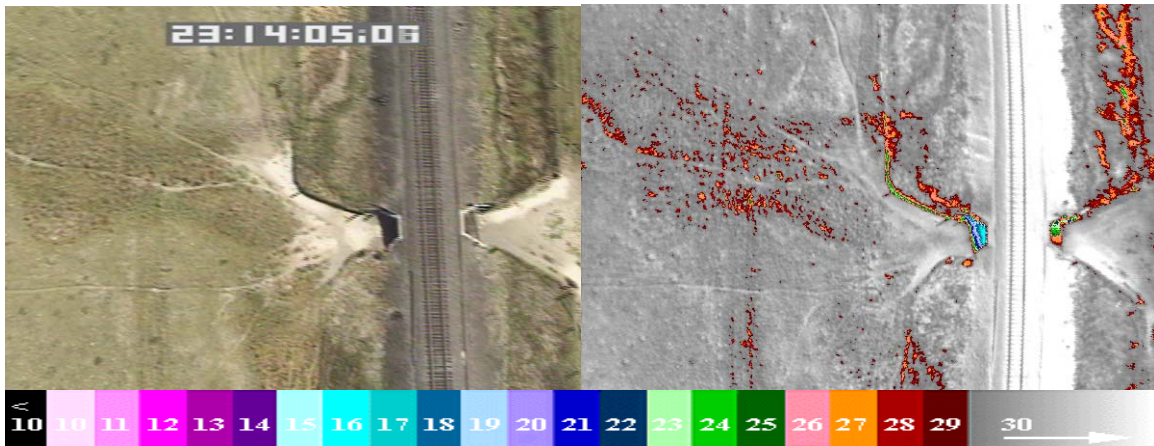
Frame: fall0542 – This image pair shows the headwater spring (6.8°C) on Fall River at river mile 11.1.



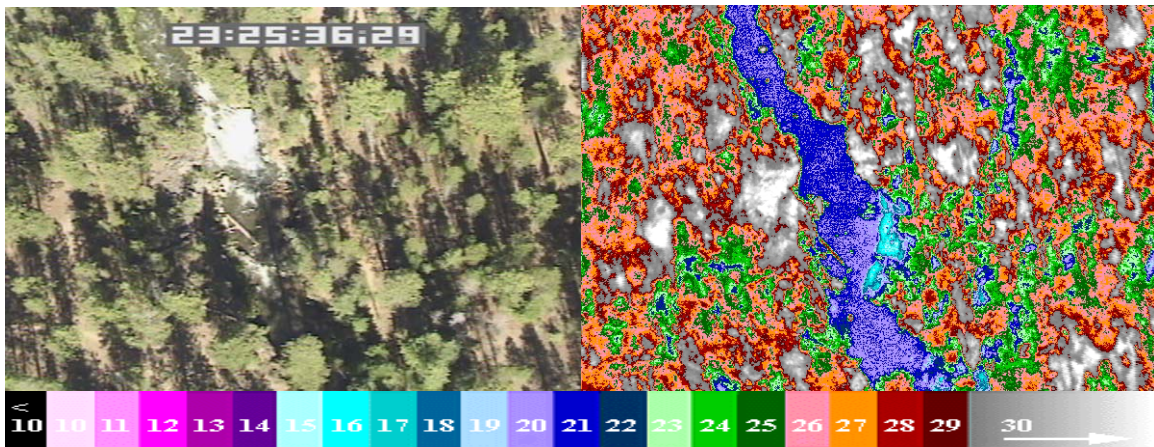
## *Paulina Creek*



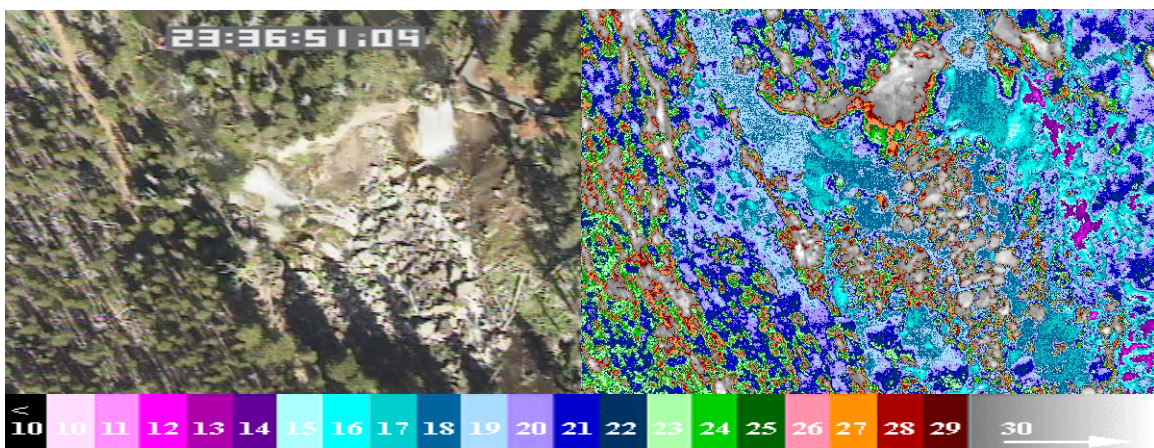
Frame: pal0066 – This image pair shows the confluence of Paulina Creek (24.4°C) and the Little Deschutes River (21.8°C). Very little surface water was visible in the lower 2.5 miles of Paulina Creek.



Frame: pal0162 – This image pair shows a dry creek bed at river mile 1.1 which is representative of approximately 2 miles (15%) of the Paulina Creek.

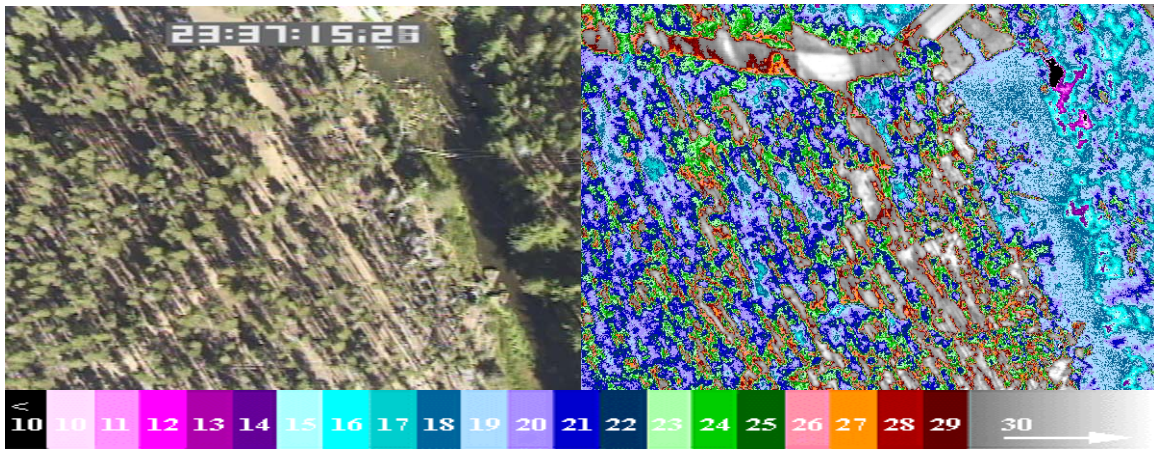


Frame: pal0508 – Image pair showing an unidentified cold region on the left bank of Paulina Creek (20.9°) at river mile 7.8 near McKay Crossing. However, the visible shadows in the color video image (left) preclude positive identification of this source. Flow direction is from the top to bottom of the image.



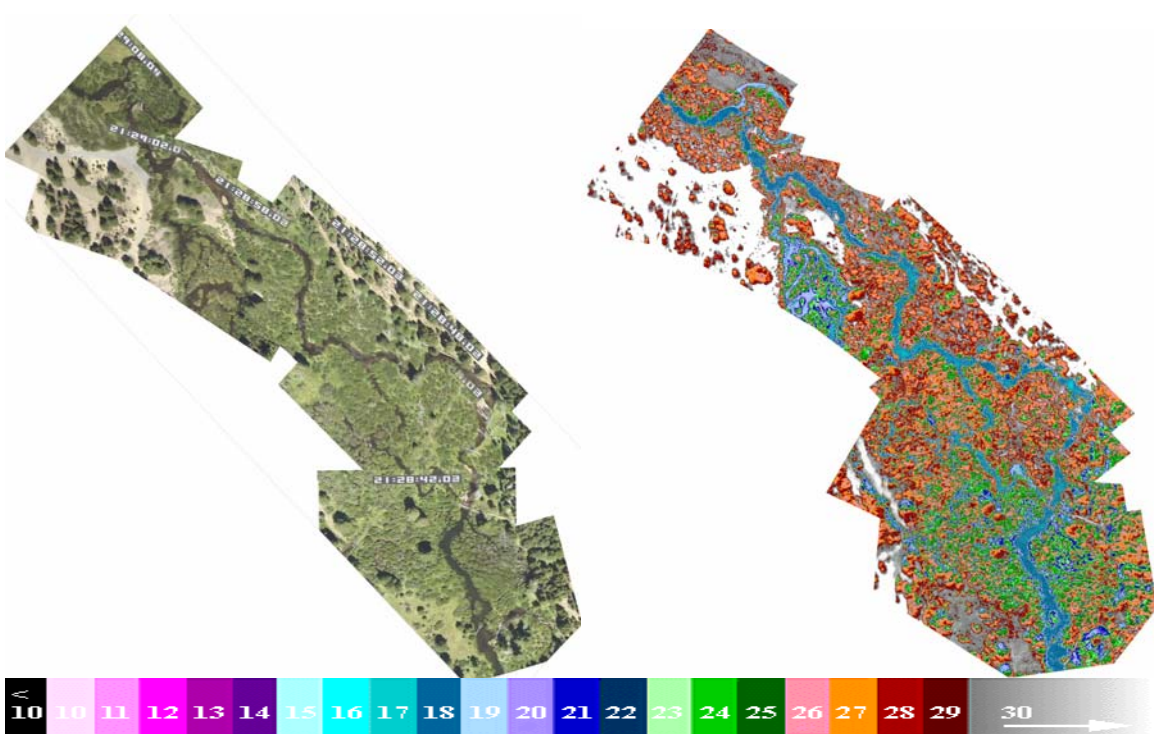
Frame: pal0829 – This image pair shows Paulina Creek Falls at river mile 12.9. A 1.0°C drop in stream temperature was noted at this location and several apparent cool inputs are noted around the falls. However, visible shadows precluded separating cool water inputs from cool regions created by the shadows. Flow direction is from the top to bottom of the image.



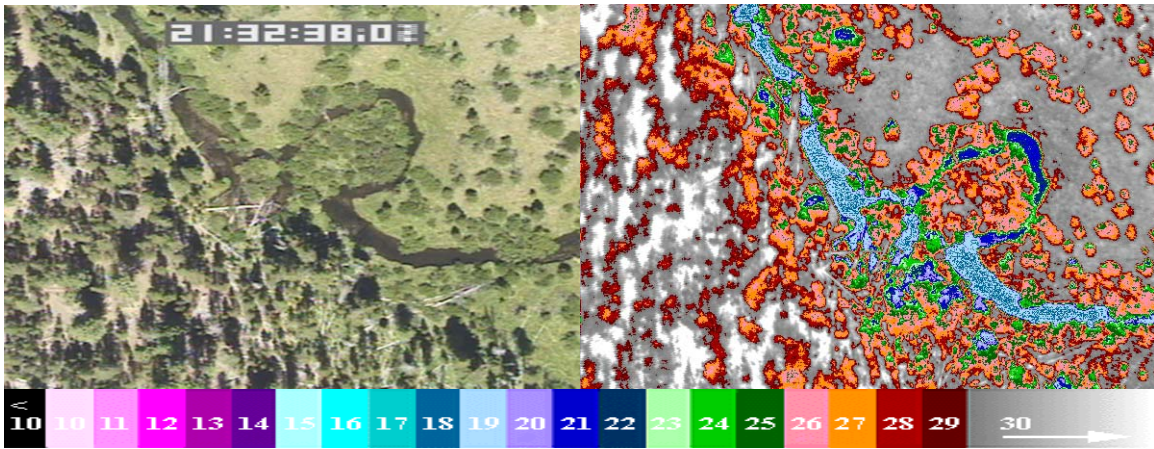


Frame: pal0841 – These images show an apparent spring (12.1°C) on left bank of Paulina Creek (19.1°) at river mile 13.1 just below the outlet of Paulina Lake.

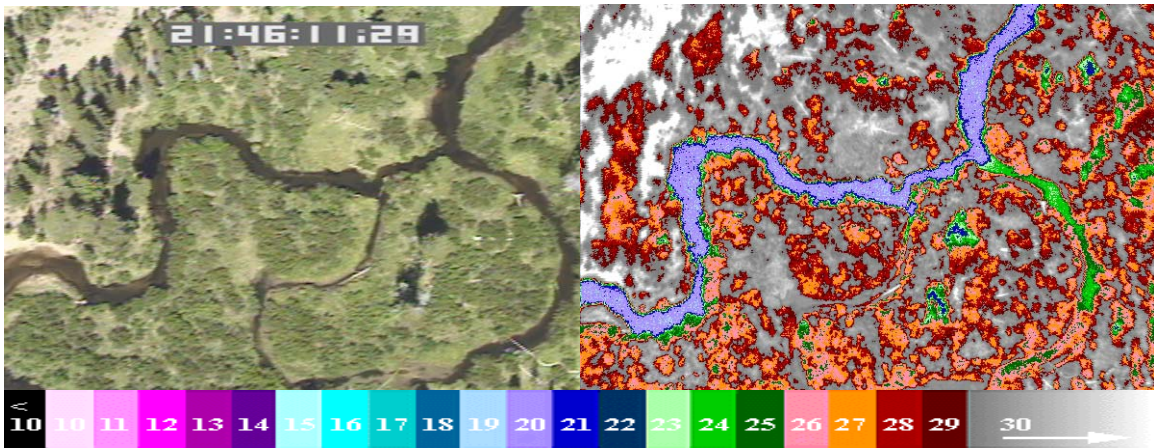
*Little Deschutes River*



Frame: ld0547-0563 – Mosaic pair showing a marshy region of the Little Deschutes River from river mile 76.6-76.9. Flow direction is from the bottom to top of the image.

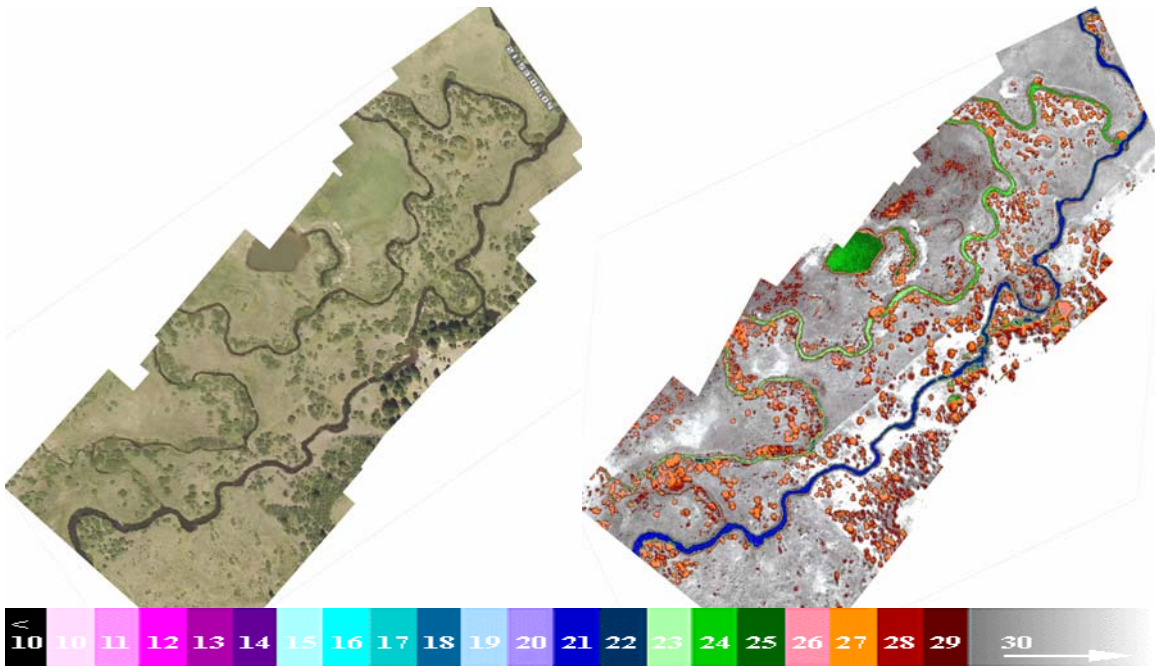


Frame: Id0668 – This image shows a side channel (21.6°C) at river mile 72.3 of the Little Deschutes River (18.8°C).

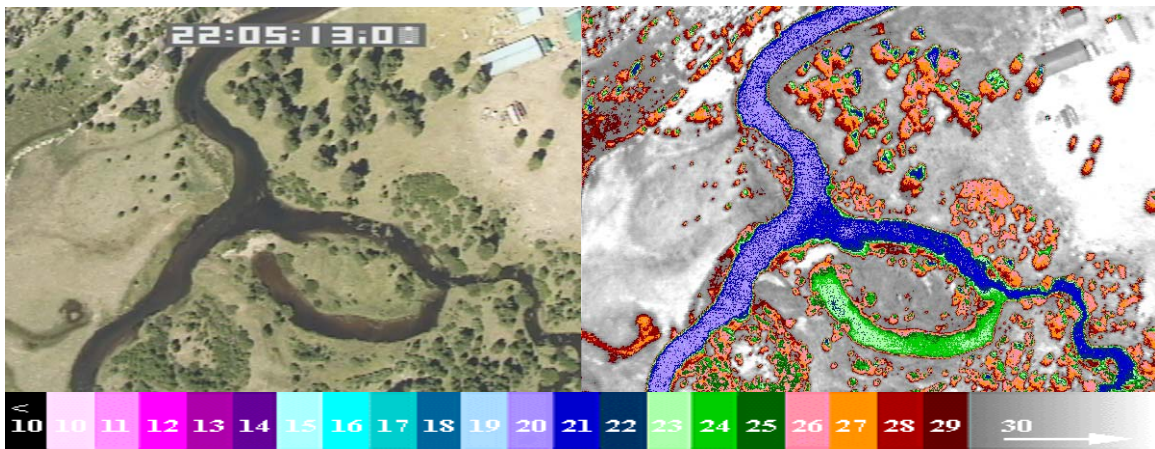


Frame: Id1048 – This image pair acquired at river mile 67.4 of the Little Deschutes River (20.1°C) shows a side channel (24.4°C) that is typical of the Little Deschutes River.

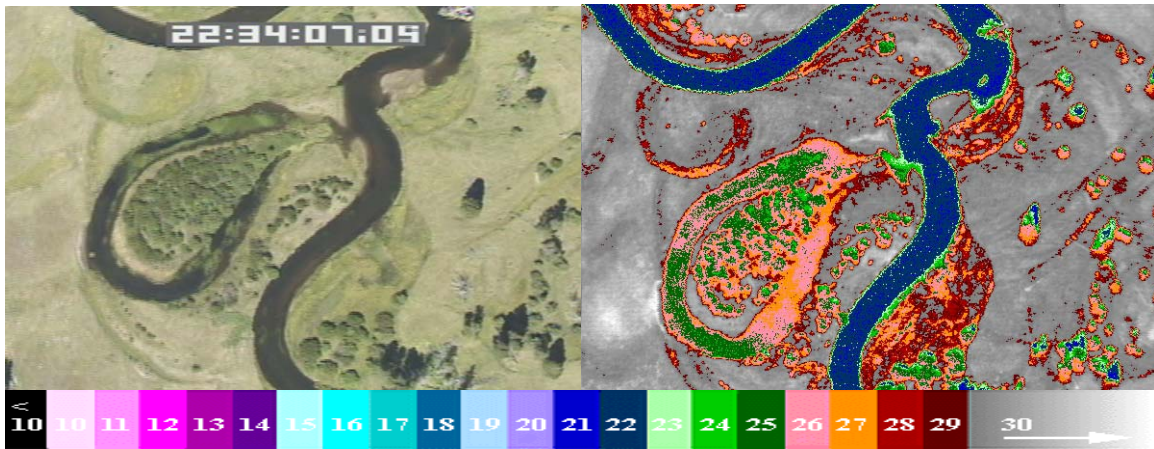




Frame: Id1236-1255 – Mosaic of the Little Deschutes (21.1°C) at river mile 62.76.



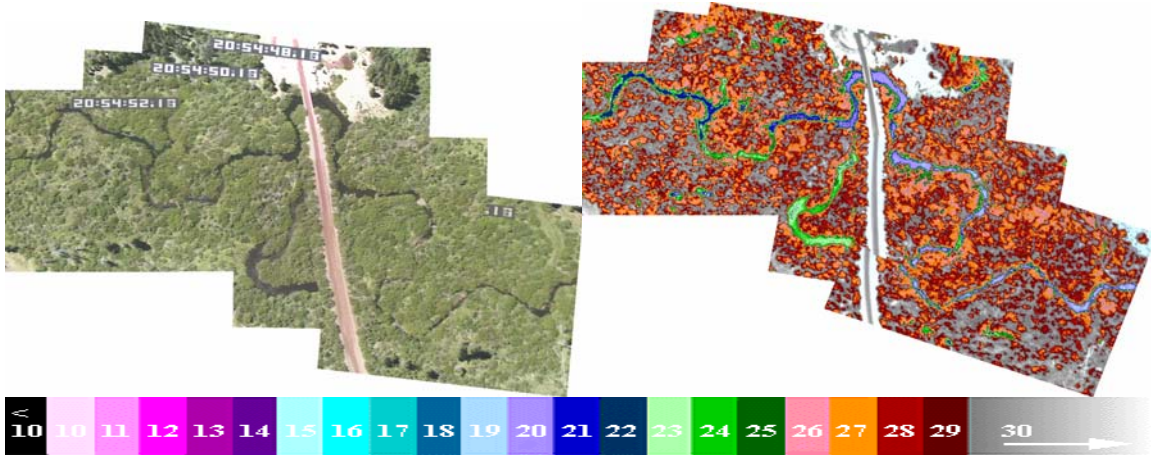
Frame: Id1594 – This image pair shows the confluence of Crescent Creek (20.6°C) to the left bank of the Little Deschutes River (21.4°C) at river mile 54.1. Further upstream the Little Deschutes from Crescent Creek, there is an off channel on the right bank which measures (22.7°C). The Little Deschutes River flows from the bottom to top of the image.



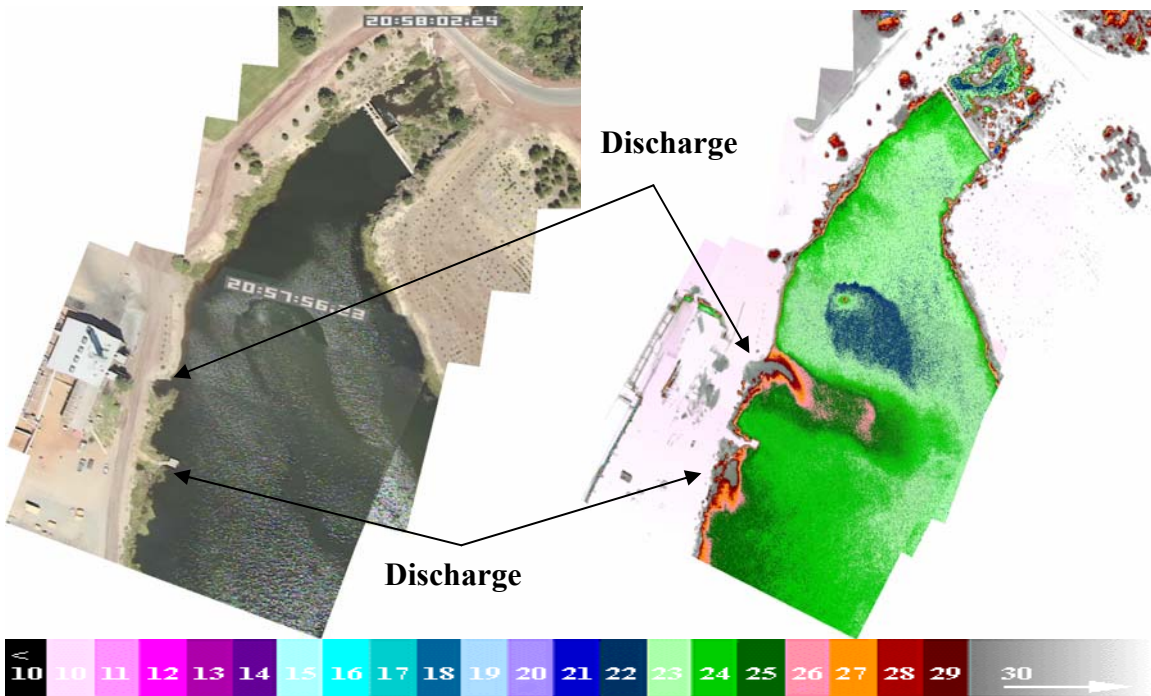
Frame: Id2461 – This pair shows the Little Deschutes River (22.2°C) at river mile 23.9. The old oxbow on the left bank is typical of the Little Deschutes River. Stream temperatures remained consistent through this reach, which suggests that the old oxbows are important conduits for sub-surface exchanges.



*Little Deschutes River (7/25)*

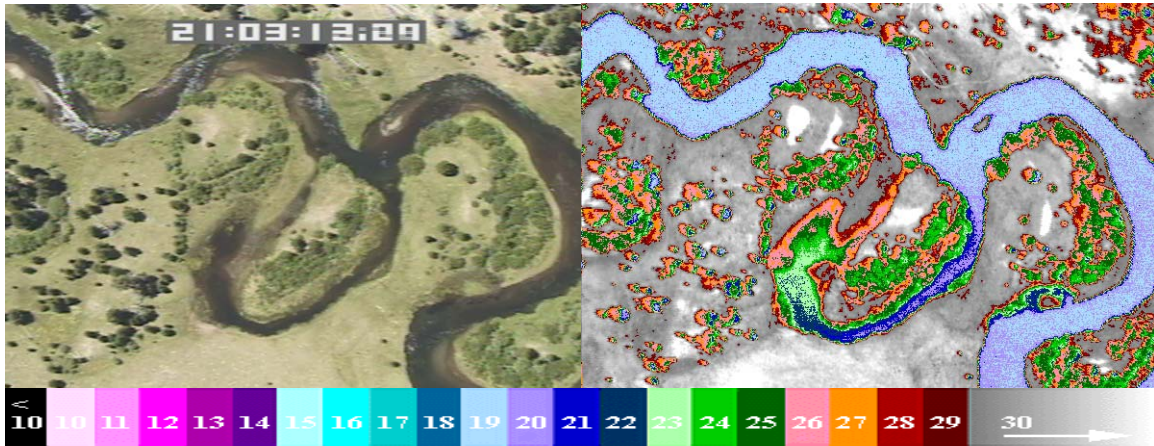


Frame: cred0190-0195 – River mile 58.6 is the location of a side channel on the right bank of the Little Deschutes River. The side channel is three degrees warmer than the mainstream, which was 20.1°C.

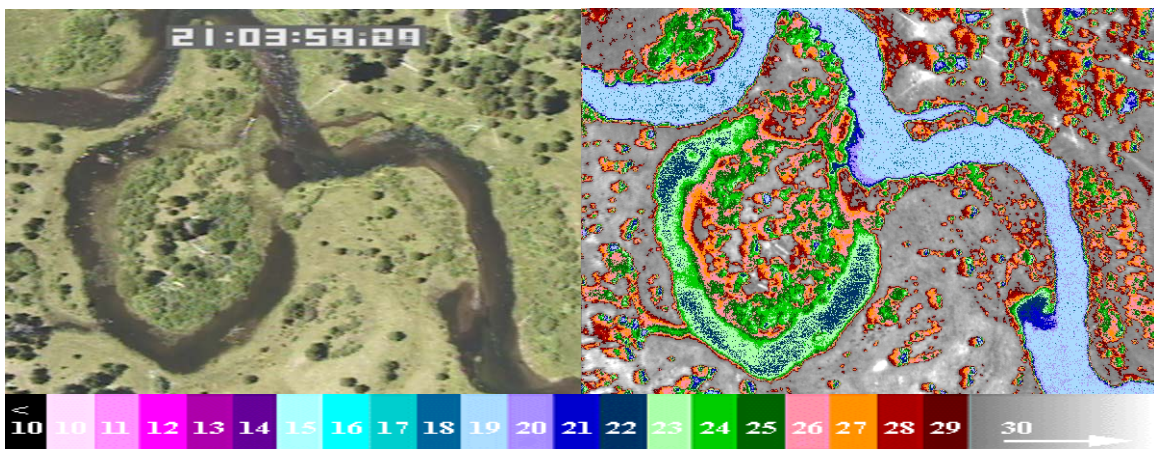


Frame: cred0285 – Image pair showing warm water discharges ( $\approx 33.3^{\circ}\text{C}$ ) into the West side of Gilchrist Pond. The flow direction is from the bottom to top of the image. The mixing in the center of the pond shows that the pond is thermally stratified. The outflow to the Little Deschutes River is shown in the top of the image.

## *Crescent Creek*

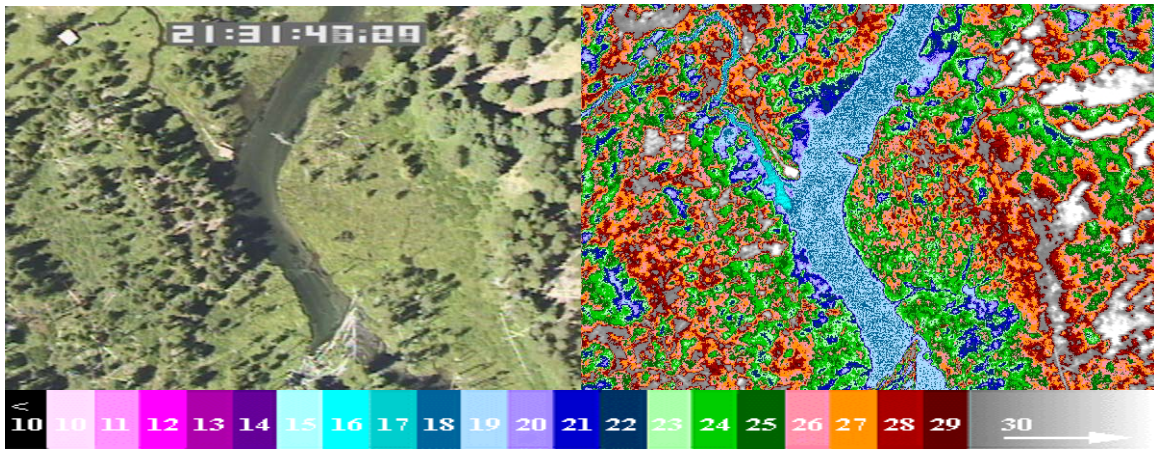


Frame: cres0039 – This image pair shows a side channel (20.3°C) at river mile .8 of Crescent Creek (19.6°C). The flow direction is from the top to bottom of the image.

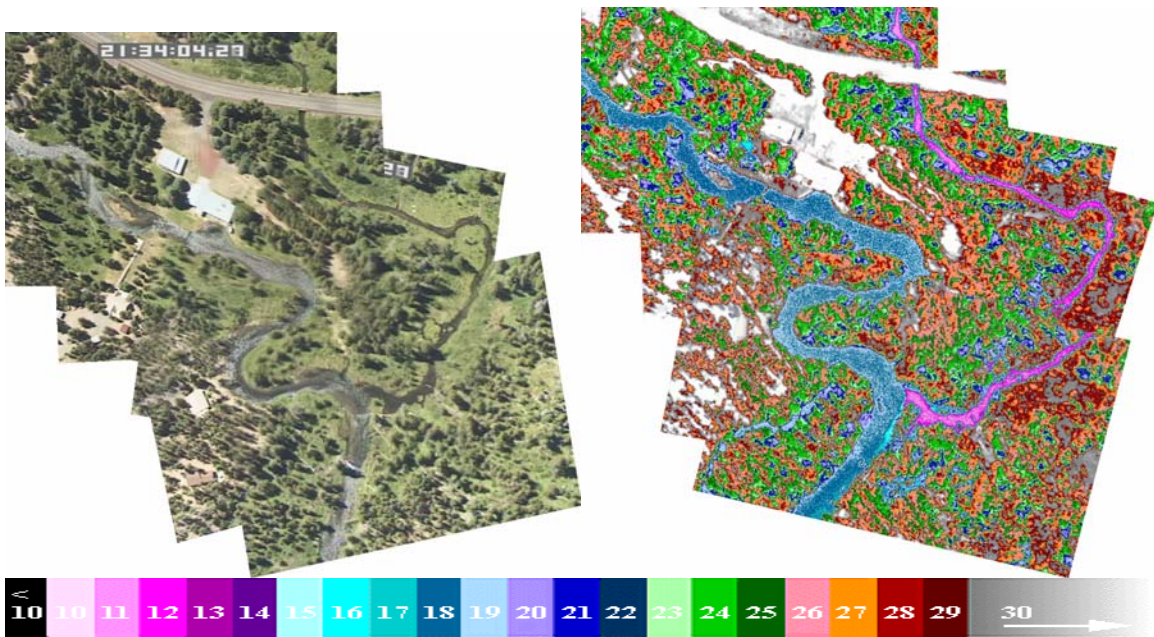


Frame: cres0062 – This image pair shows a cut-off oxbow (22.9°C) on the right bank of Crescent Creek (19.4°C) at river mile 1.4. As with the Little Deschutes River, meander bends and oxbows are a typical feature of Crescent Creek.



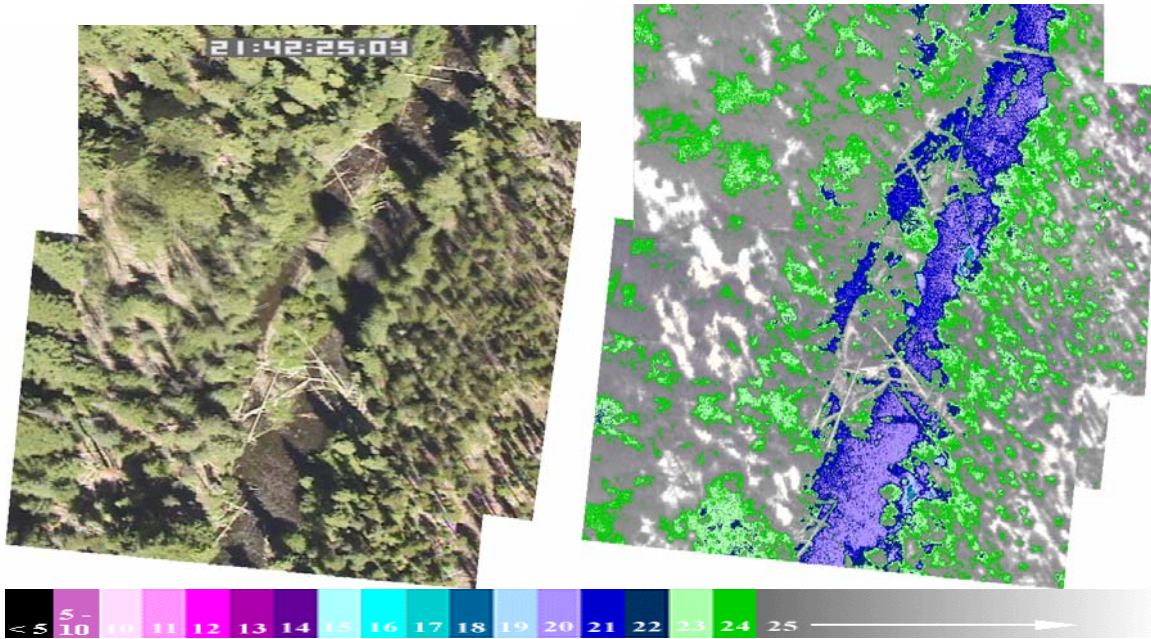


Frame: cres0896 – These images show the confluence of an unnamed tributary (16.8°C) to the right bank of Crescent Creek (19.2°C) at river mile 23.8.



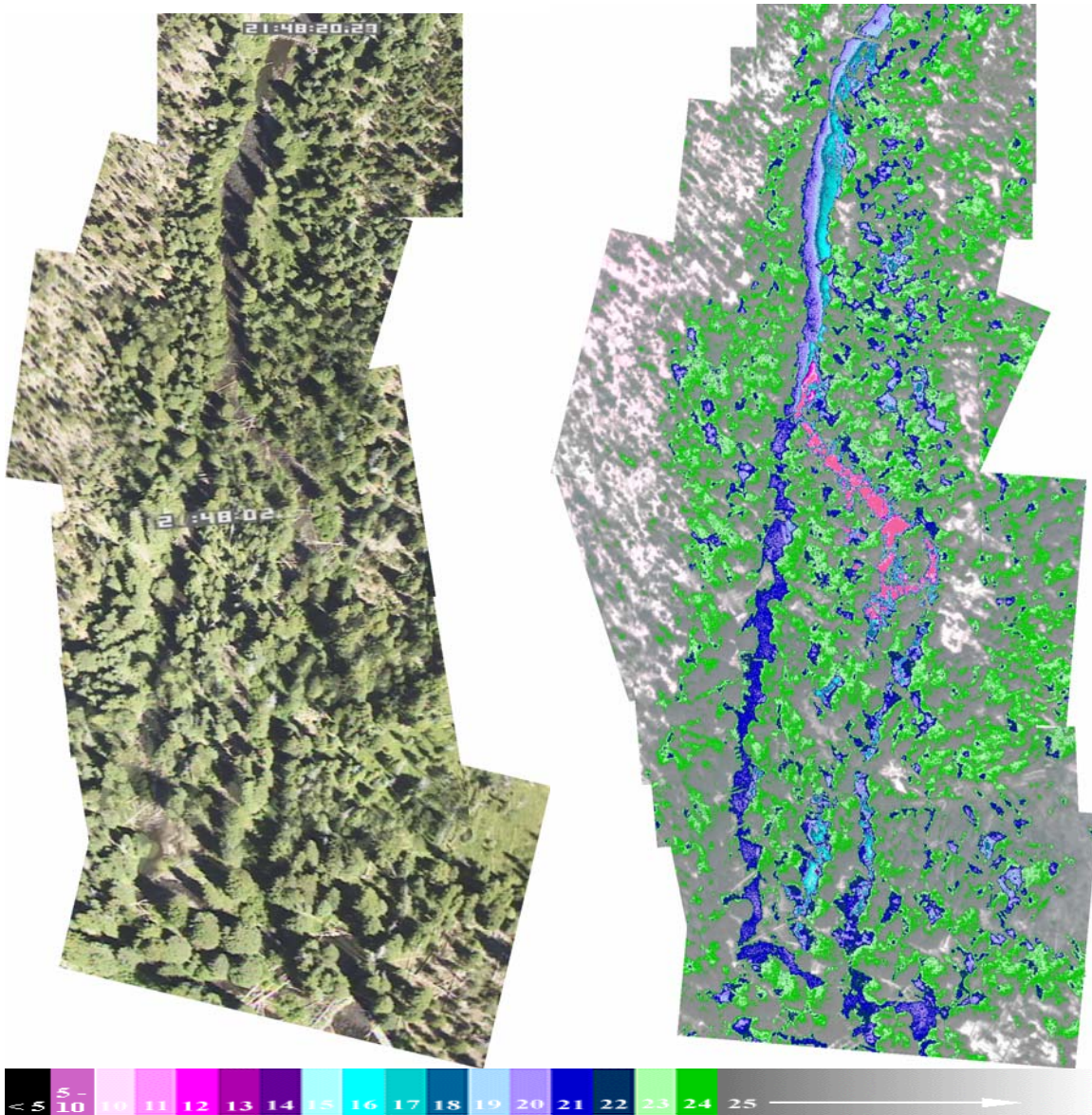
Frame: cres0960-0965 –Cold Spring Creek (12.4.°C) enters Crescent Creek (18.9°C) at river mile 24.5. Flow direction is from the top to bottom of the image.

***Odell Creek***

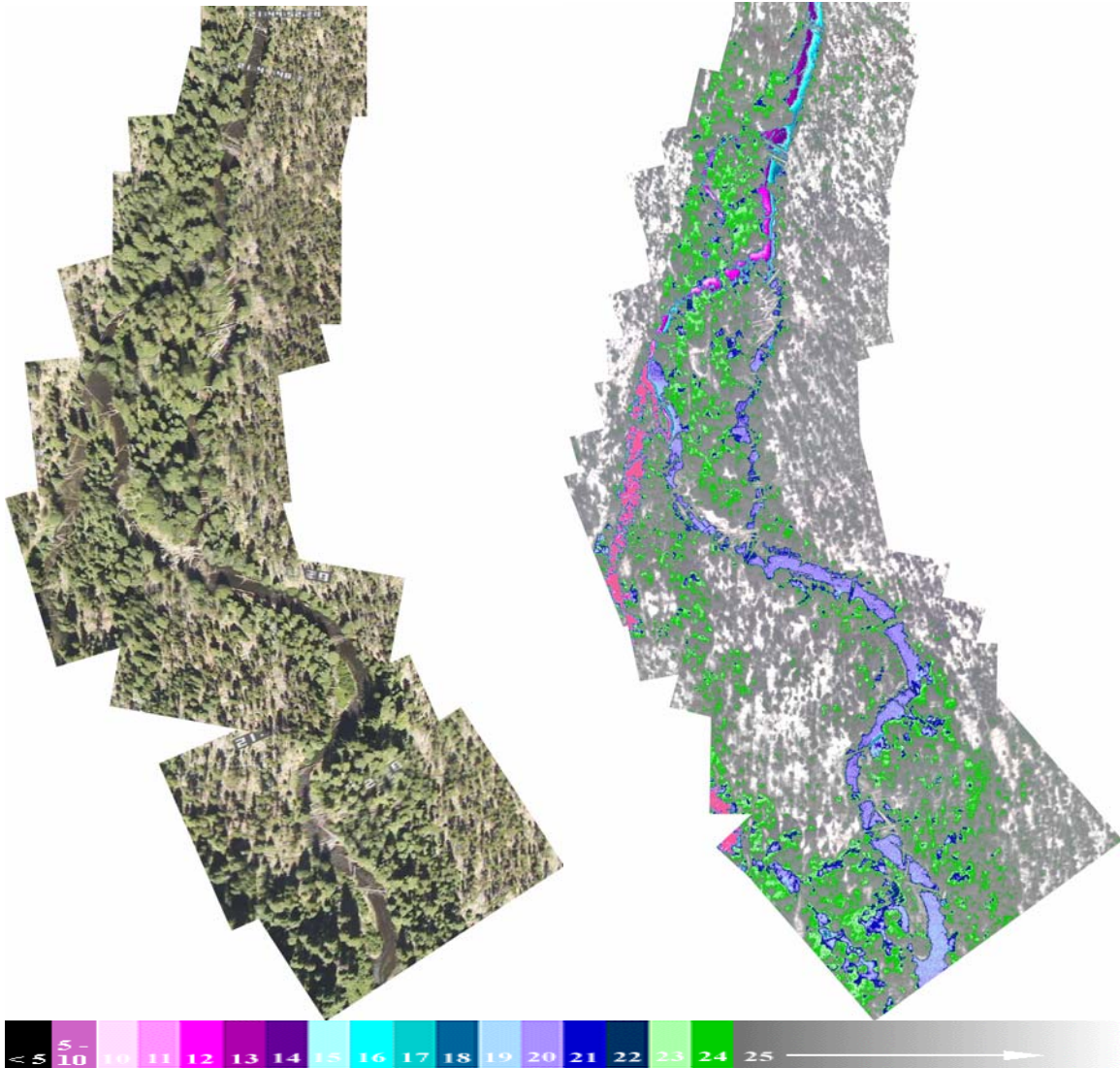


Frame: ode0073-0076 – This image pair shows a side channel (21.4°C) along the left bank of Odell Creek (18.9°C) at river mile 10.5. Flow direction is from the bottom to top of the image.



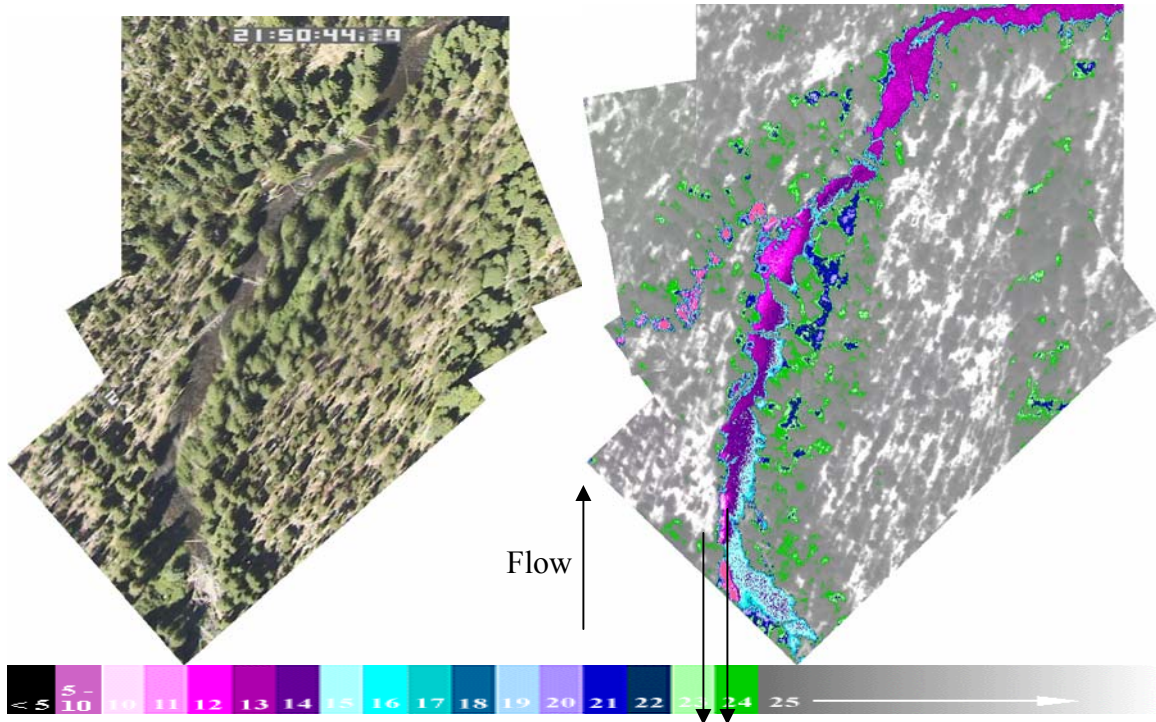


Frame: ode0241-0254 – This mosaic shows a cold spring (9.43°C) on the right bank of Odell Creek (20.9°) at river mile 9.0. The spring was not identified on the USGS 1:24k topographic maps. Flow direction is from the bottom to top of the image.



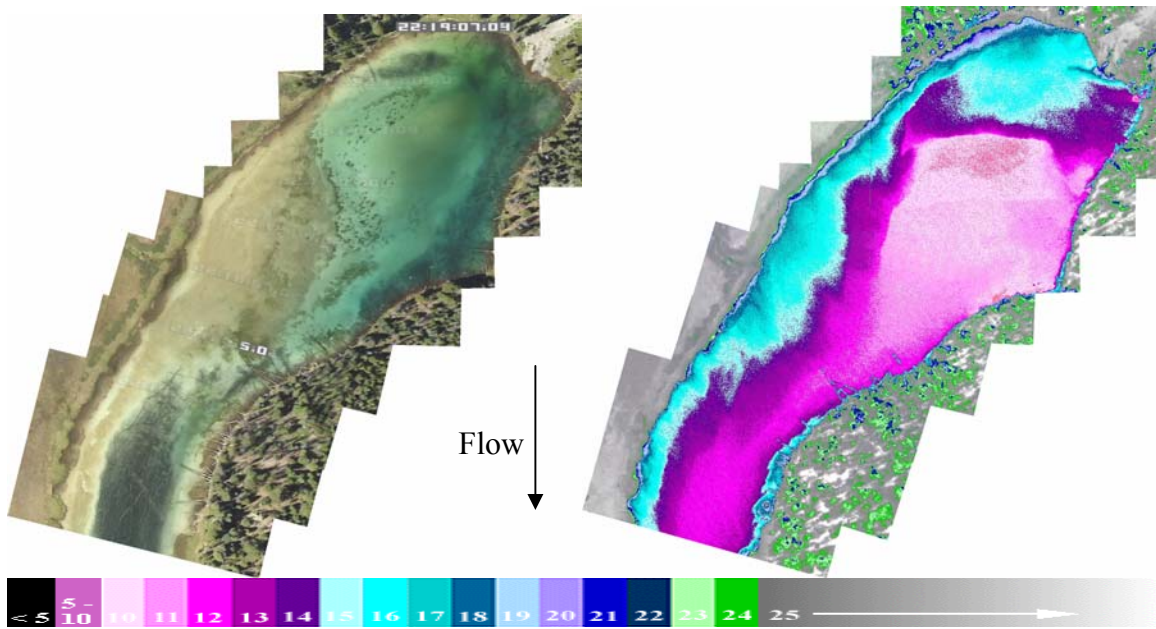
Frame: ode0280-0300 – These images show a cold spring (7.8°C) on the left bank of Odell Creek (20.5°C) at river mile 8.2. This spring was not identified on the USGS 1:24k topographic maps. However, the topographic maps did show a perennial tributary at this location.



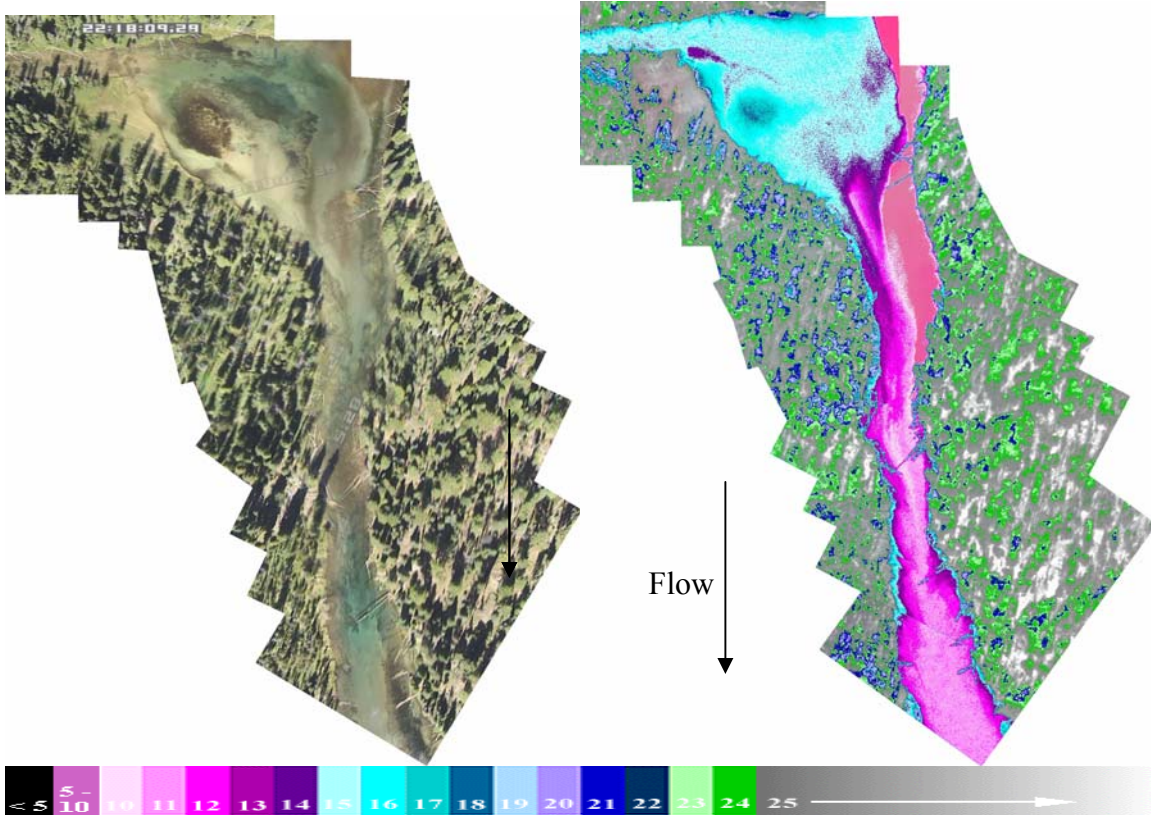


Frame: ode0322-0326 – At river mile 7.7 there is a cold spring ( $6.9^{\circ}\text{C}$ ) upstream from the mouth of Maklak Creek ( $8.8^{\circ}\text{C}$ ) in Odell Creek ( $14.9^{\circ}\text{C}$ ).

***Deschutes River (7/25)***

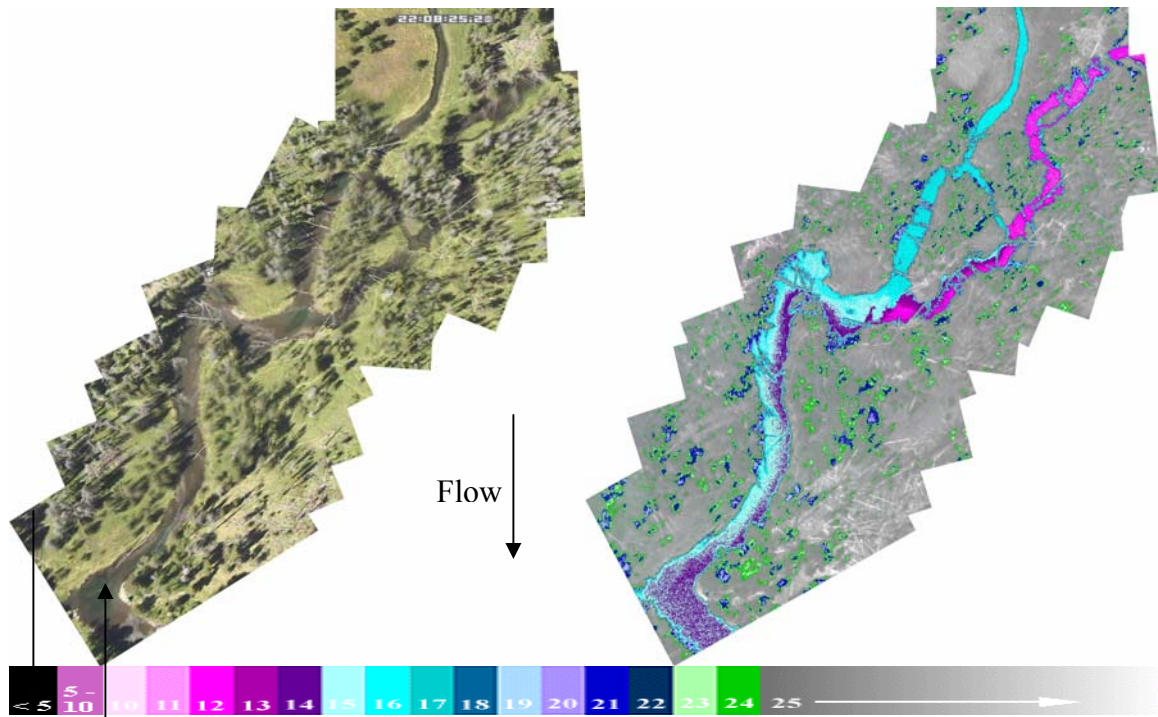


Frame: des0380-0387 – These mosaics show a cold spring ( $8.8^{\circ}\text{C}$ ) on the left bank of the Deschutes ( $12.7^{\circ}\text{C}$ ) at river mile 243.

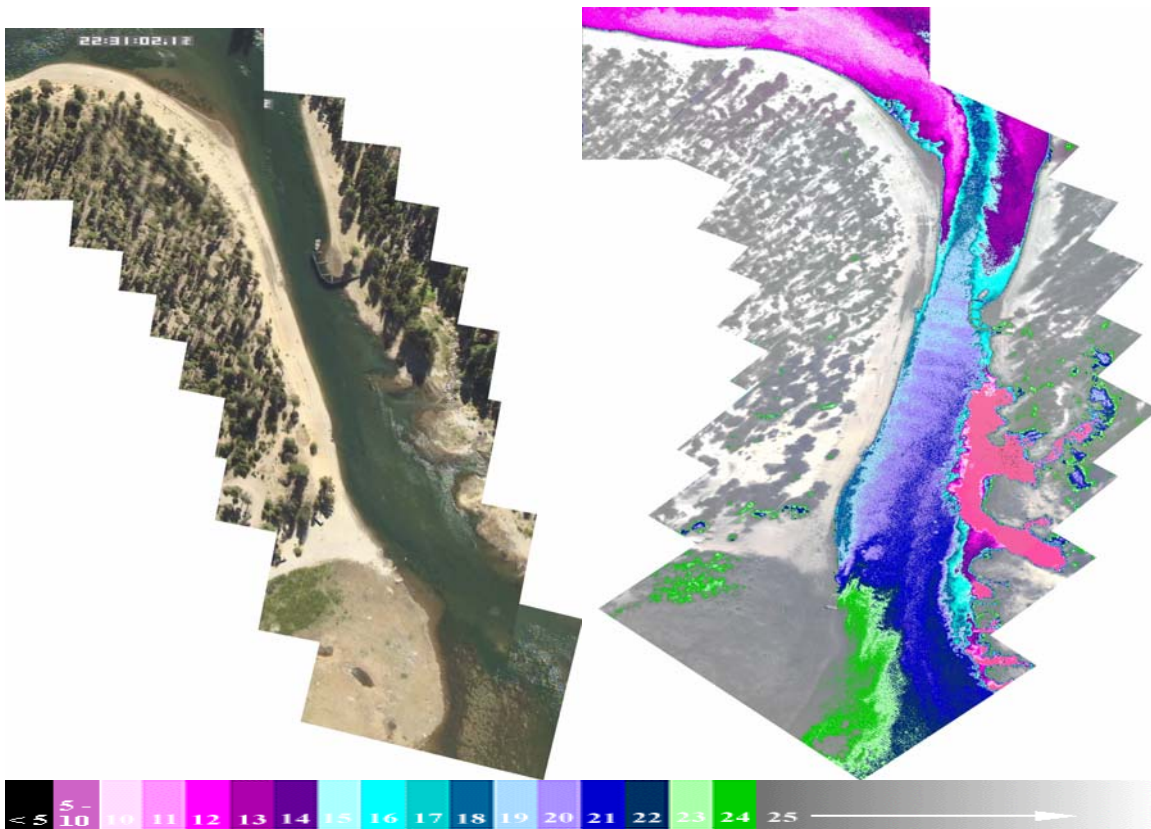


Frame: des0350-0358 – This image mosaic shows a cold spring (8.0°C) on the left bank of the Deschutes River (15.4°C) at river mile 242.3. This spring contributes significantly to flow in the Deschutes River between Little Lava Lake and Crane Prairie Reservoir.

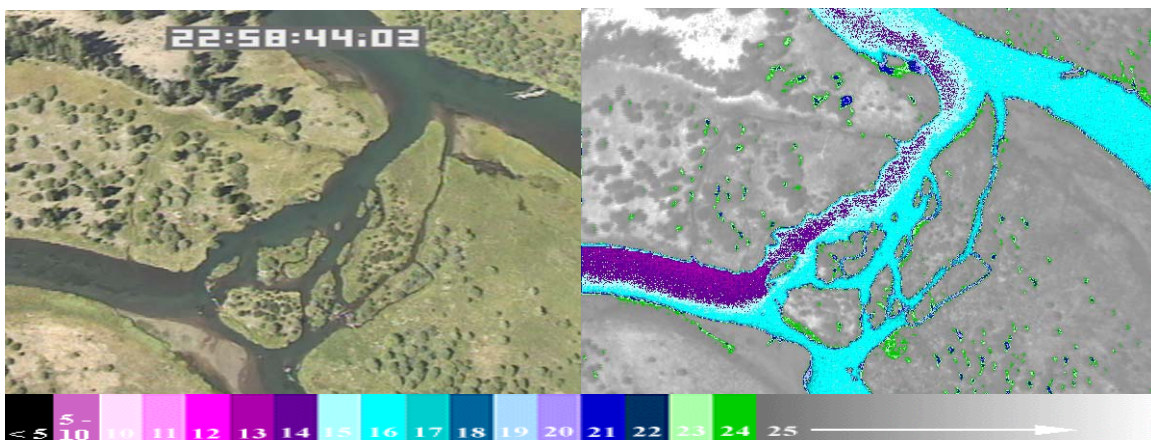




Frame: des0055-0066 – These mosaics show the confluence of Snow Creek (12.8°C) to the left bank of the Deschutes River (15.2°C) at river mile 236.1. Flow direction is from the top to bottom of the image.

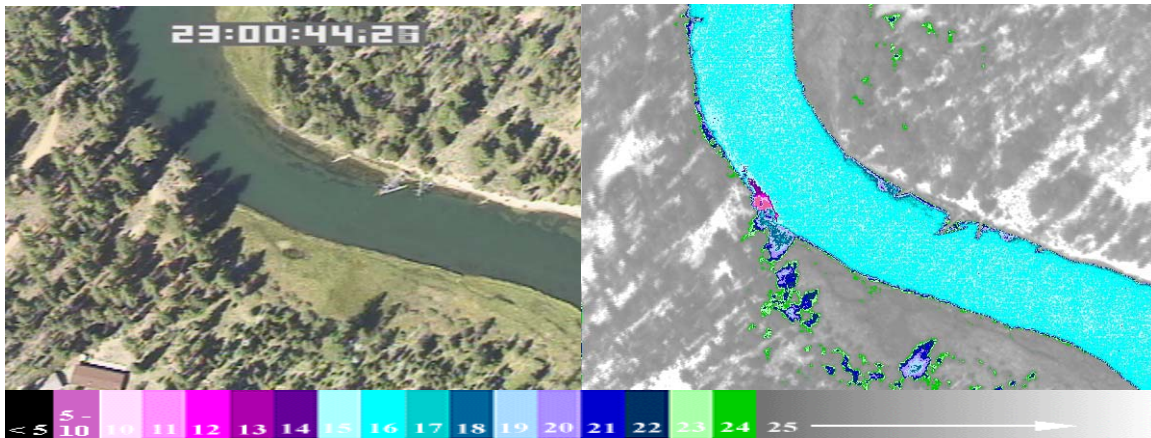


Frame: des0592-0600 – These mosaics show two springs on the right bank of the Deschutes at river mile 228.8 near sheep bridge campground. The upstream spring is 5.6°C and the downstream spring is 6.7°C while the mainstream of the Deschutes River measures 20.8°C.

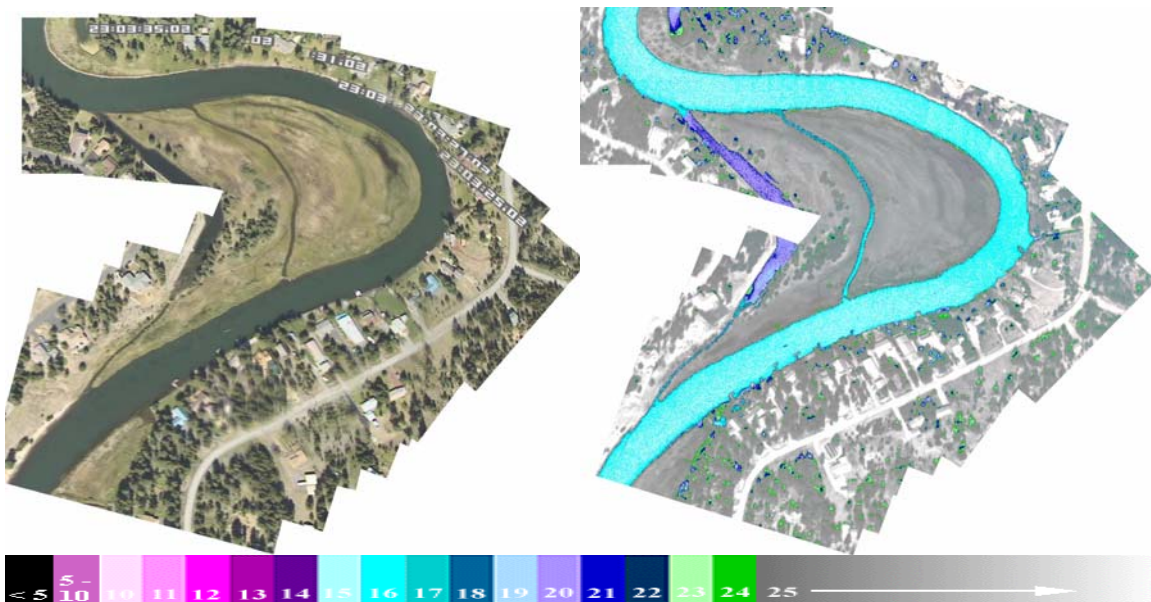


Frame: des1430 – Fall River (14.2°C) enters into the left bank of the Deschutes (16.4°C) at river mile 200.6.

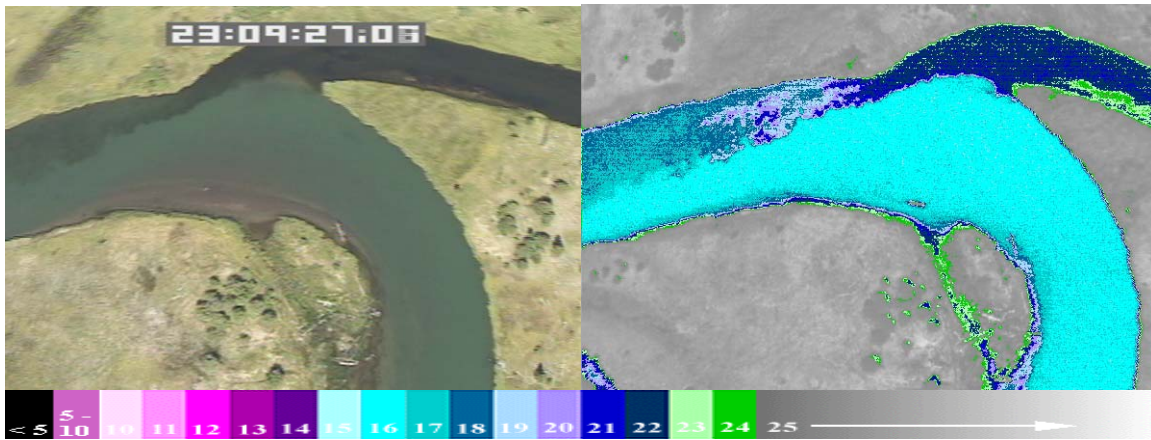




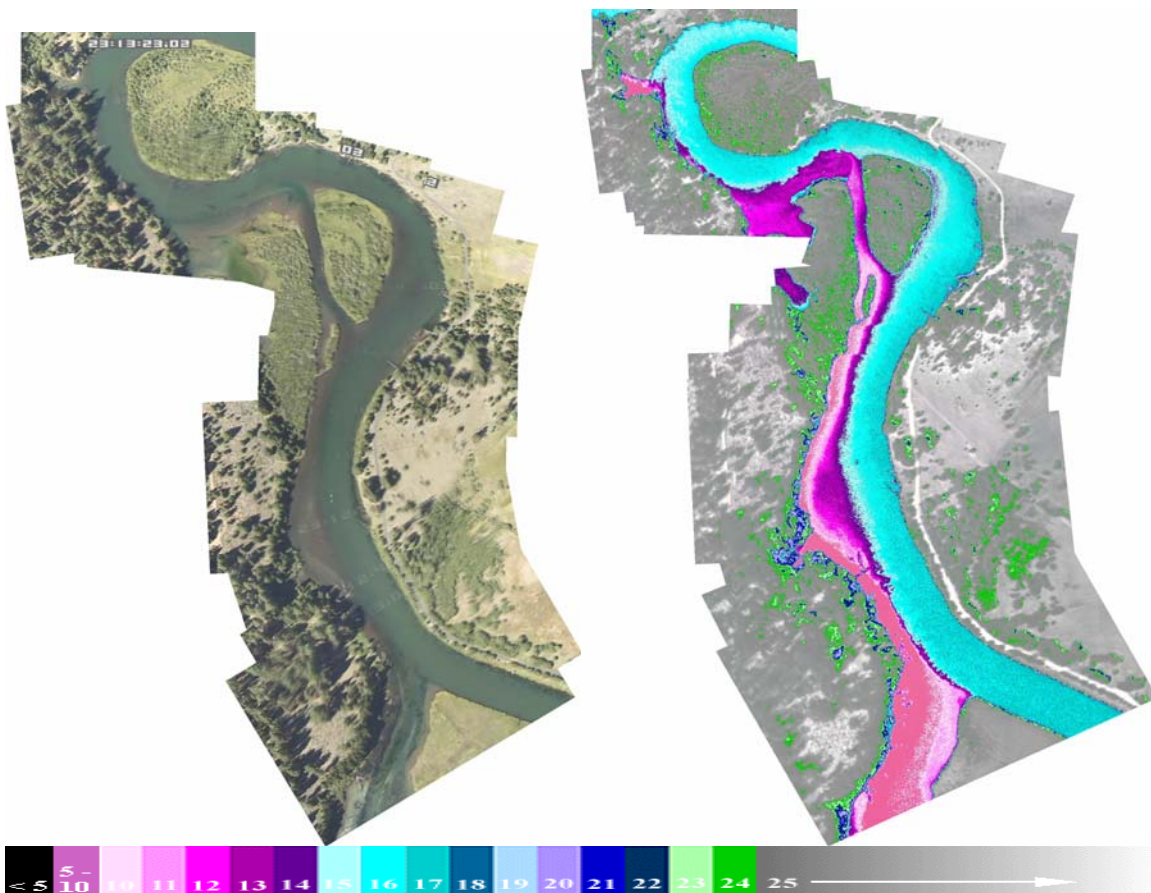
Frame: des1491 – Image pair showing an apparent spring (9.2°C) on the left bank of the Deschutes River (16.3°C) at river mile 197.7. Flow direction is from the bottom to the top of the image.



Frame: des1565-1576 – In these images, there are two side channel of the Deschutes River (15.8°C) at river mile 194.9. The upstream side channel is 17.4°C, and the downstream side channel measures 16.7°C. Flow direction is from the bottom to the top of the river.

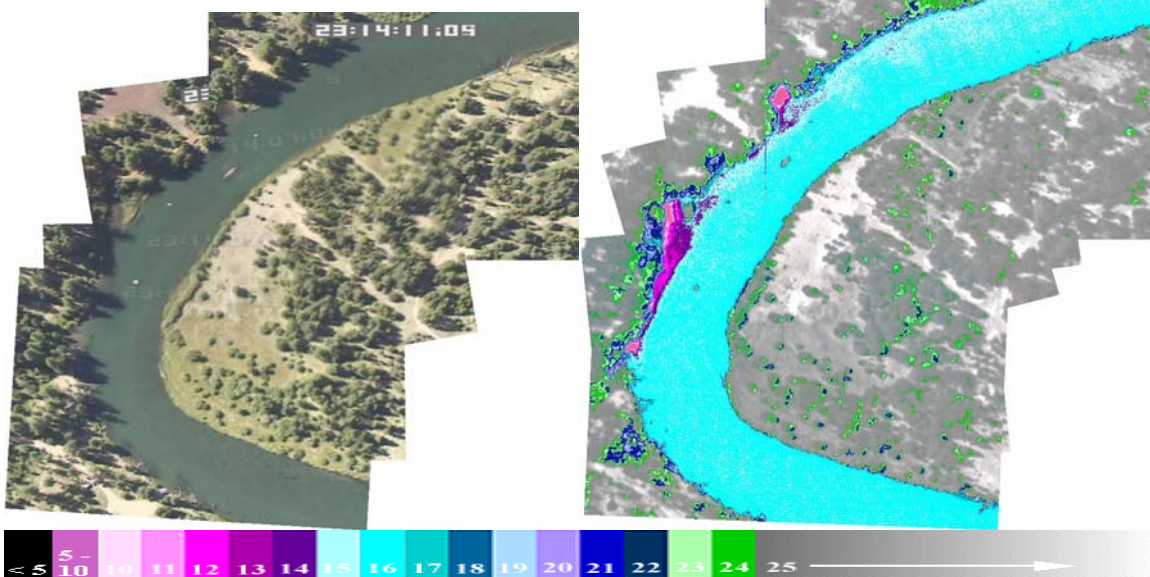


Frame: des1752 – This image pair shows the confluence of the Little Deschutes (21.8°C) to the right bank of the Deschutes (16.6°C) at river mile 189.5.

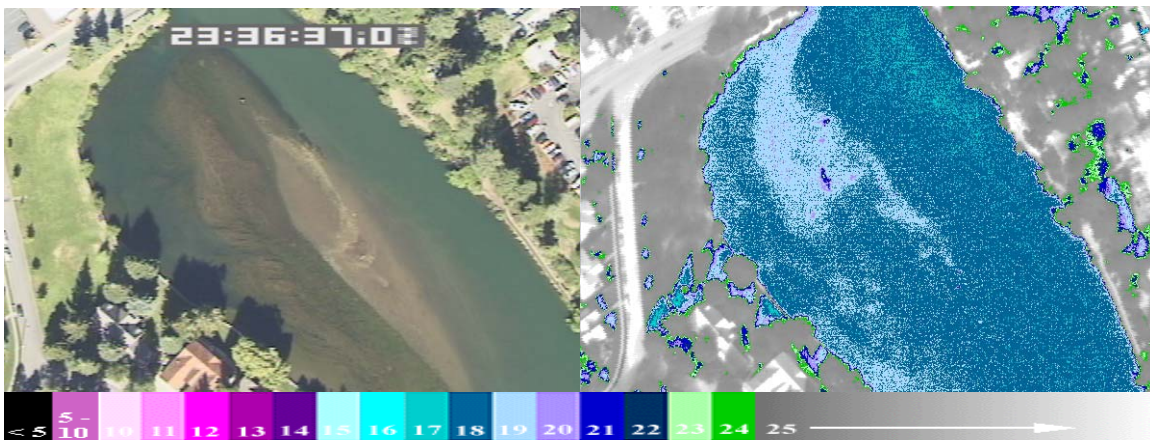


Frame: des1850-1870 – Image mosaic showing the confluence of the Spring River (8.8°C) and the Deschutes River (17.4°C) at river mile 187.4. The Spring River flows in from the left side of the image. Flow direction is from the bottom to top of the image.





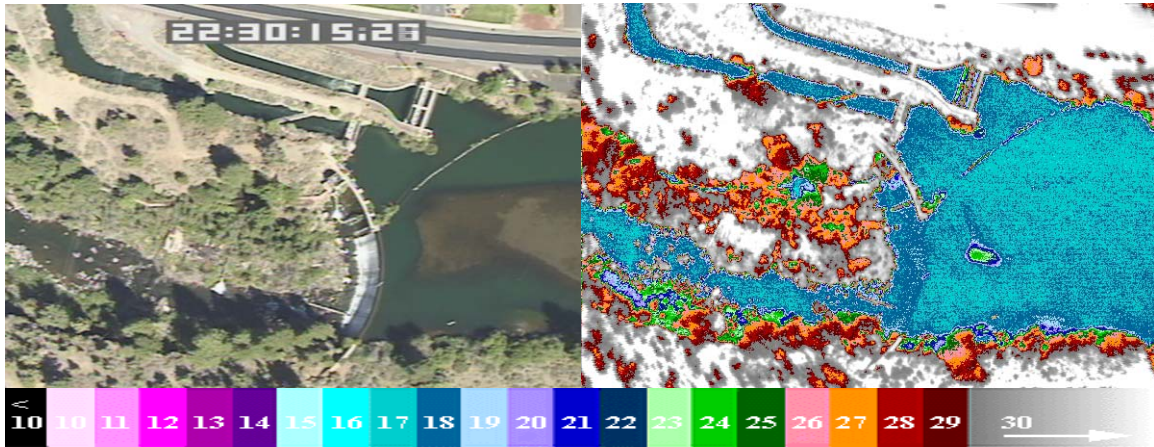
Frame: des1890-1894 – Image mosaics showing two springs entering the Deschutes River (16°C) at river mile 185.9. The spring upstream measures 10°C while the spring downstream measures 11.4°C.



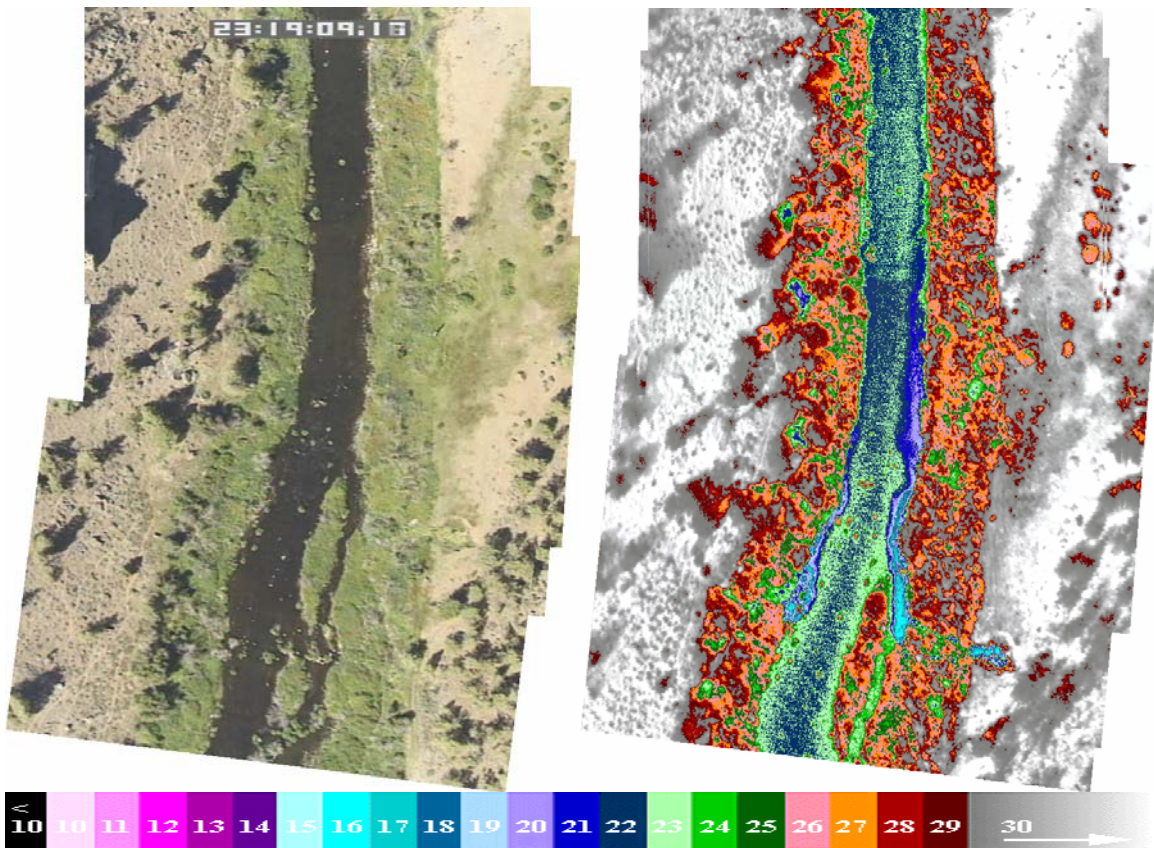
Frame: des2567 – These images shows signs of thermal stratification along the left side of the Deschutes River (18.4°C) at river mile 163.9.



## *Deschutes River (7/26)*

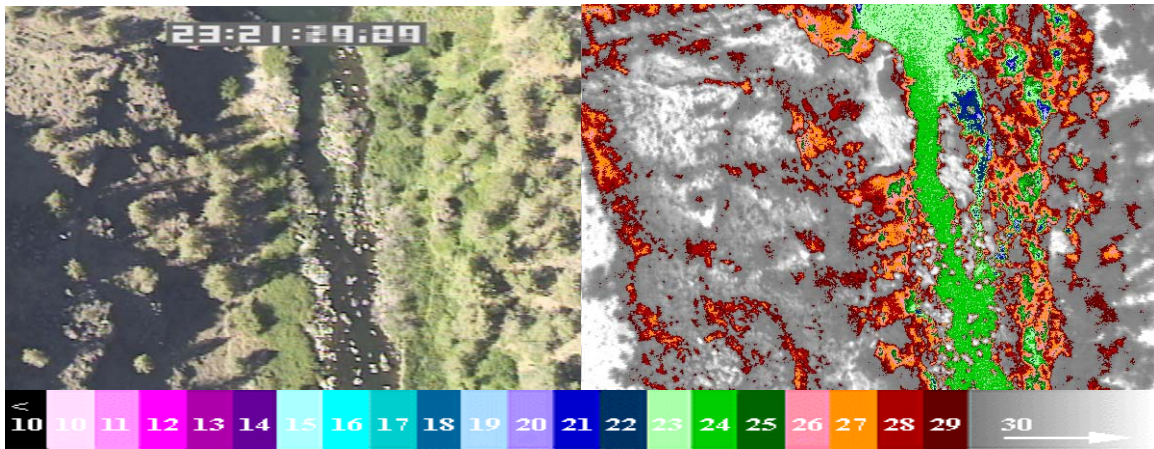


Frame: desb0307 – Image pair showing diversions from the Deschutes River at river mile 162.5. The canal on the far right bank, at the top of the image is Pilot Butte Canal and the other is Swalley Canal. Stream temperatures showed increased longitudinal heating rates downstream of this diversion.

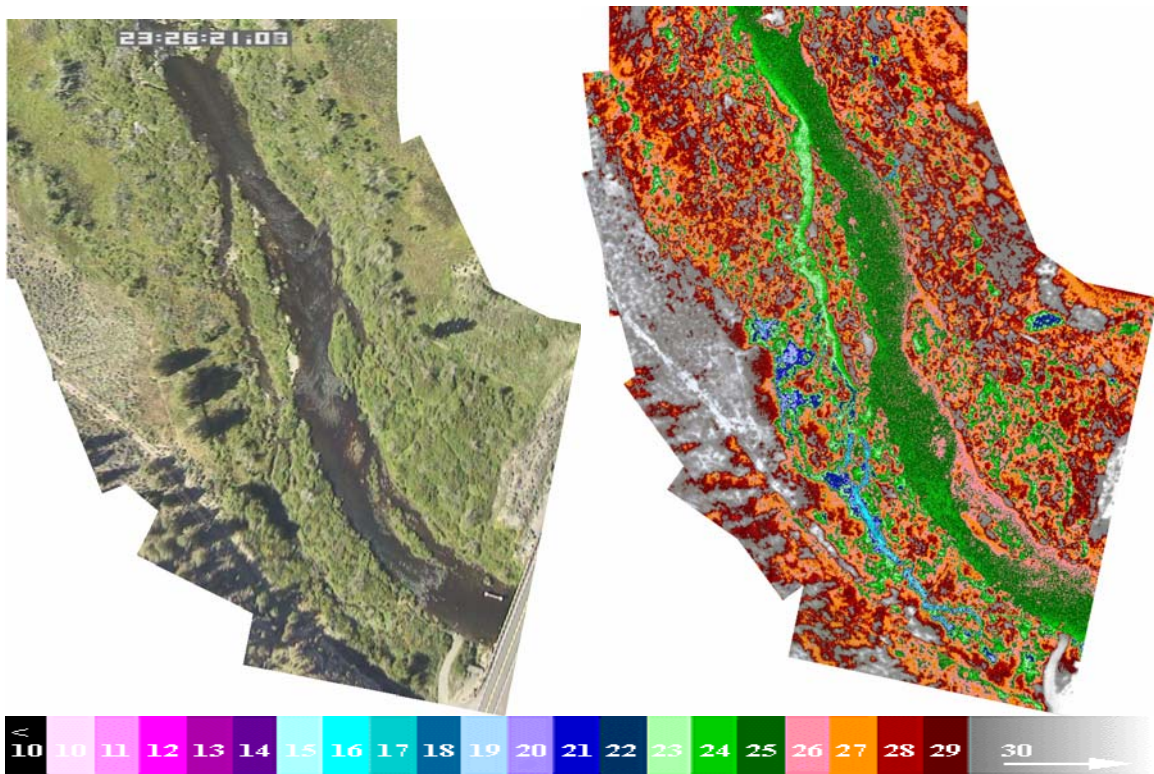


Frame: desb1530-1535 – Image pair showing two springs (16.4°C) entering the Deschutes River (22.8°C) at river mile 135.9. Flow direction is from the bottom to top of the image.



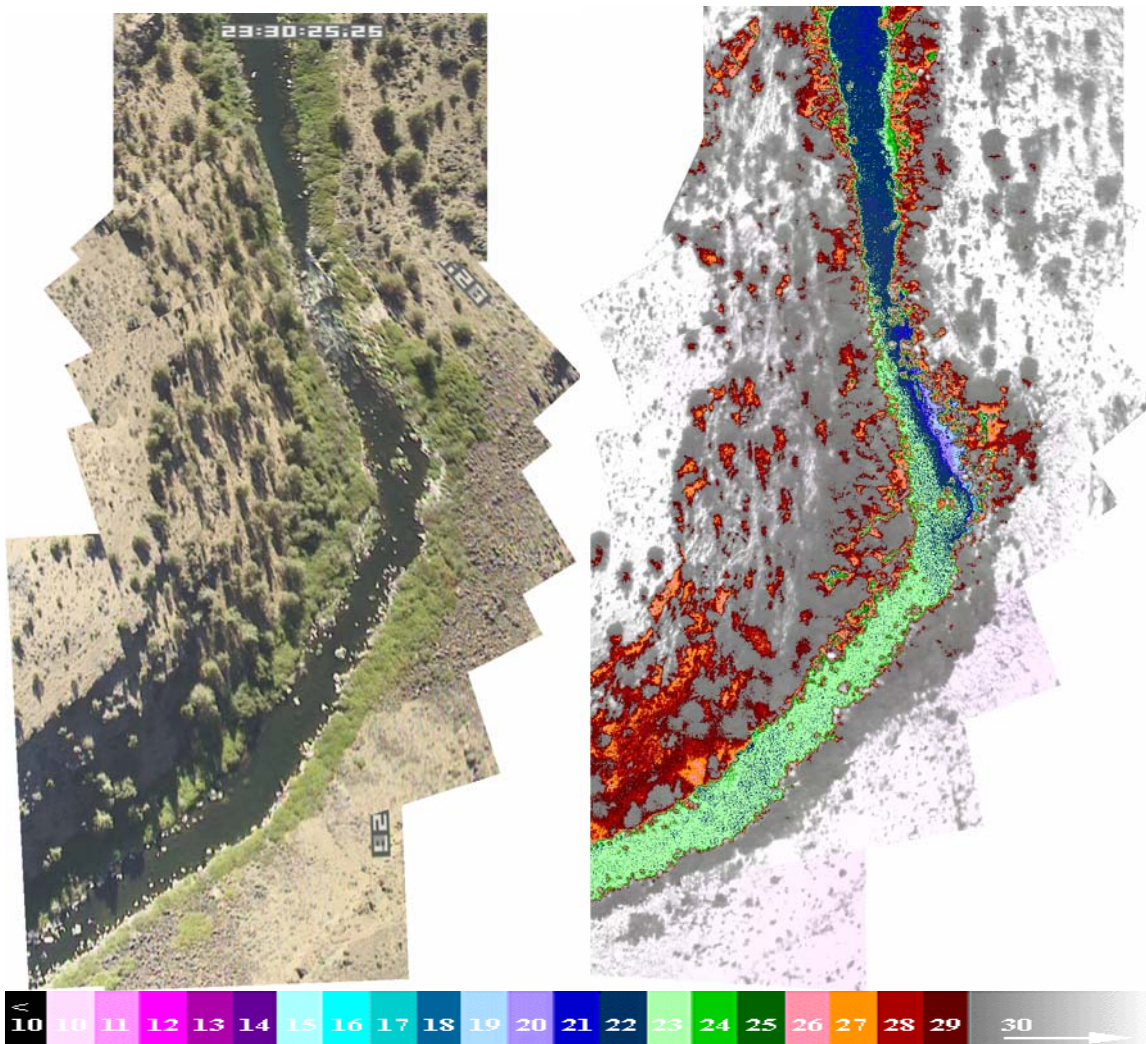


Frame: desb1593 – Image pair showing a spring (22.1°C) on the right bank of the Deschutes River (24.1°C) at river mile 134.7.

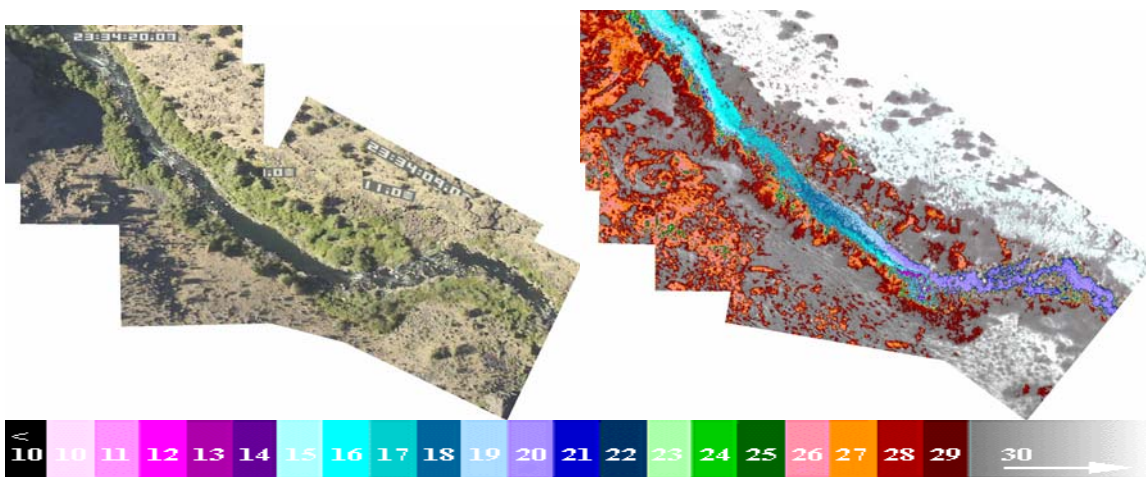


Frame: desb1726-1732 – These images show a spring outlet on the left bank of the Deschutes River (25.1°C) measuring 23.9°C at river mile 131.8.



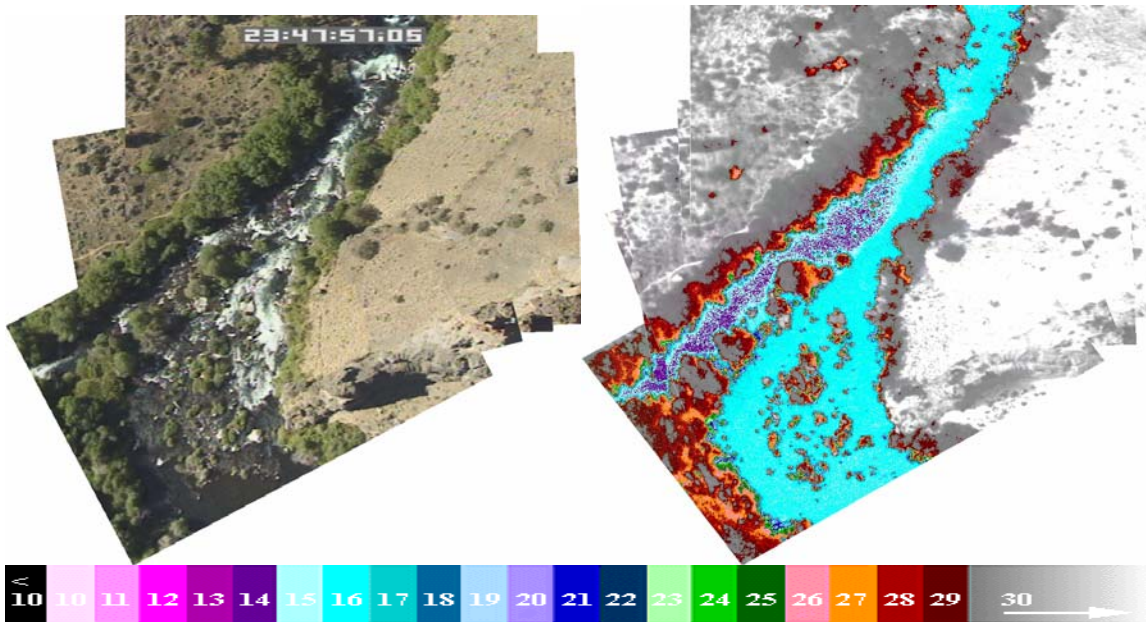


Frame: desb1846-1853 – This spring (21.3°C) at river mile 129.7 decreases the overall mainstream temperature of the Deschutes River from 23.2°C to 22.4°C.



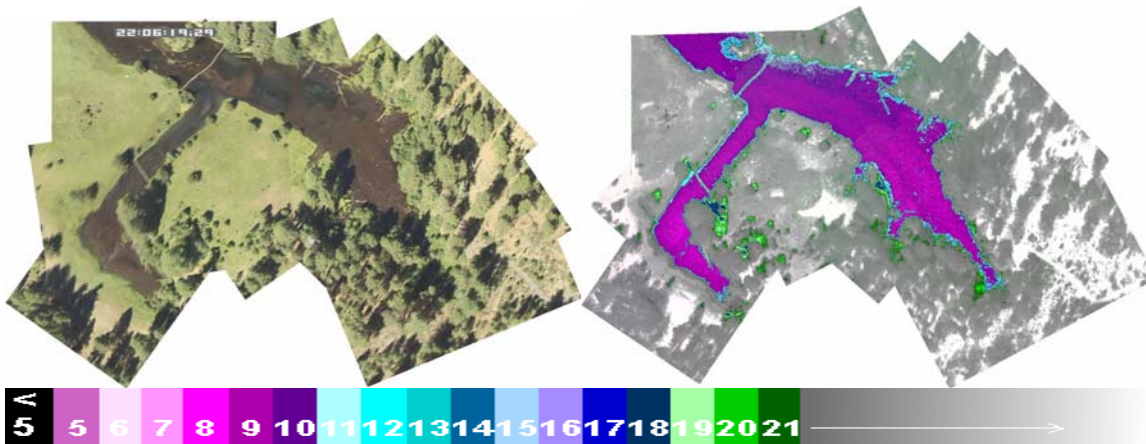
Frame: desb1938-1943 – This image pair shows a spring (12.8°C) on the left bank of the Deschutes River (20.3°C) at river mile 128.1.



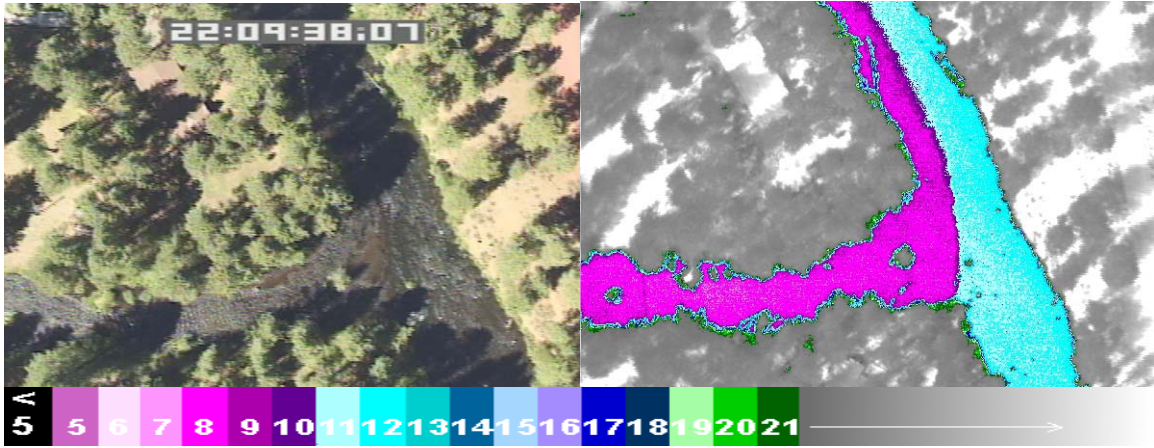


Frame: desb2299-2304 – At river mile 121.7, Squaw Creek (15°C) enters the Deschutes River (16.3°C).

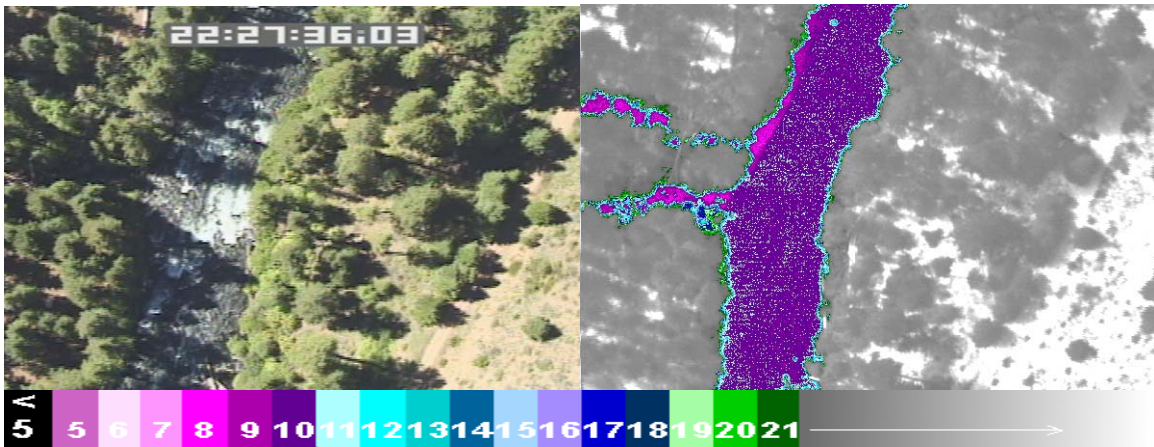
### *Metolius River*



Frame: met0010-0020 – These mosaics show the headwater spring (9.7°C) of the Metolius River and a secondary spring (9.8°C) on the left bank at river mile 39.5.

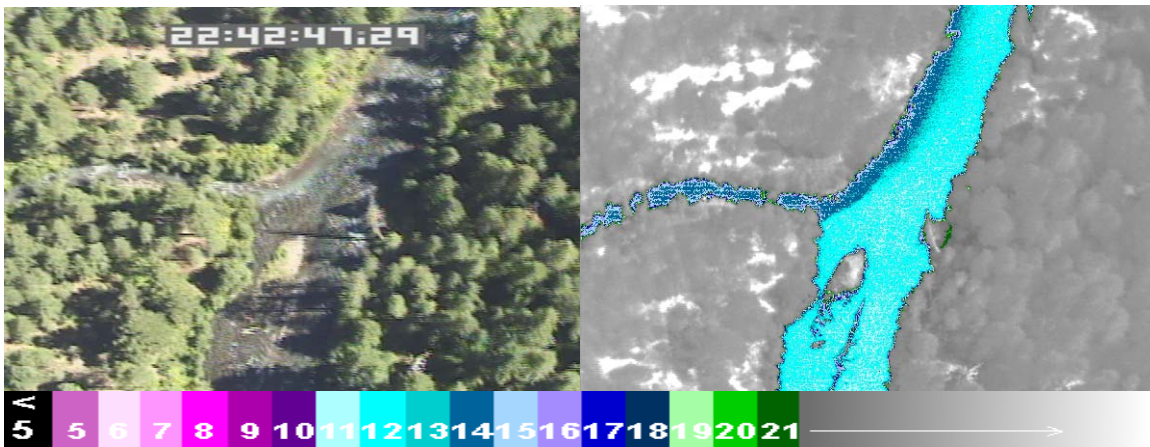


Frame: met0119 – At river mile 37.8, the North Fork of Lake Creek (8.8°C) empties into the Metolius (12.1°C).

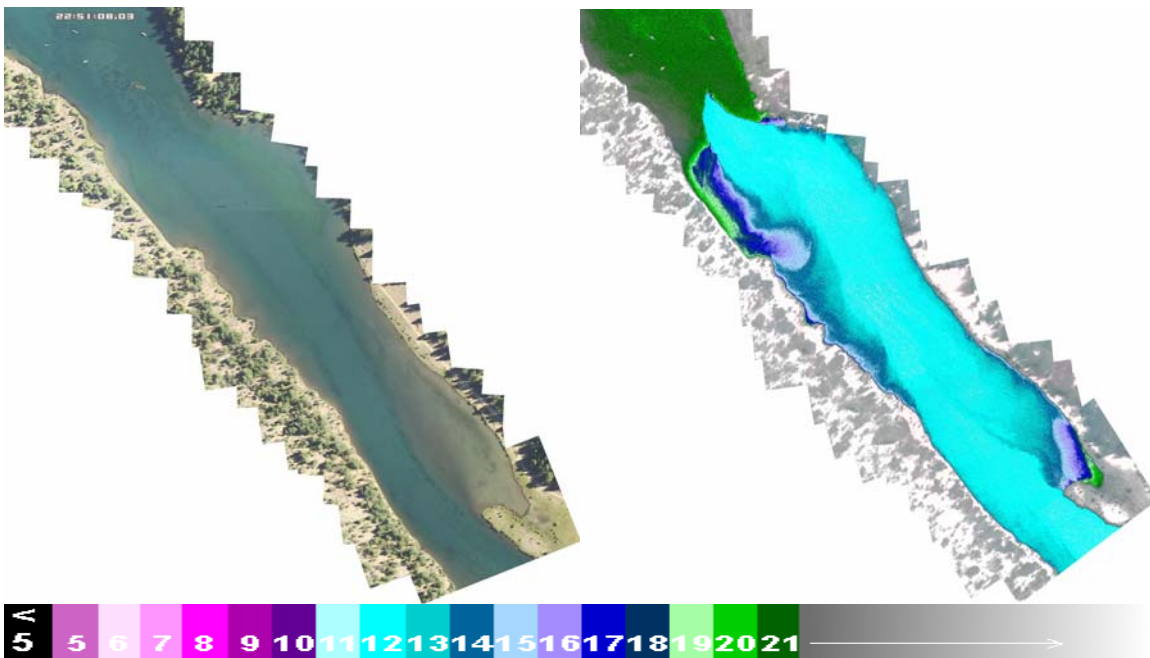


Frame: met0658 – These images show the confluence of Candle Creek (8.9°C) to the left bank of the Metolius River (10.1°C) at river mile 27.6.



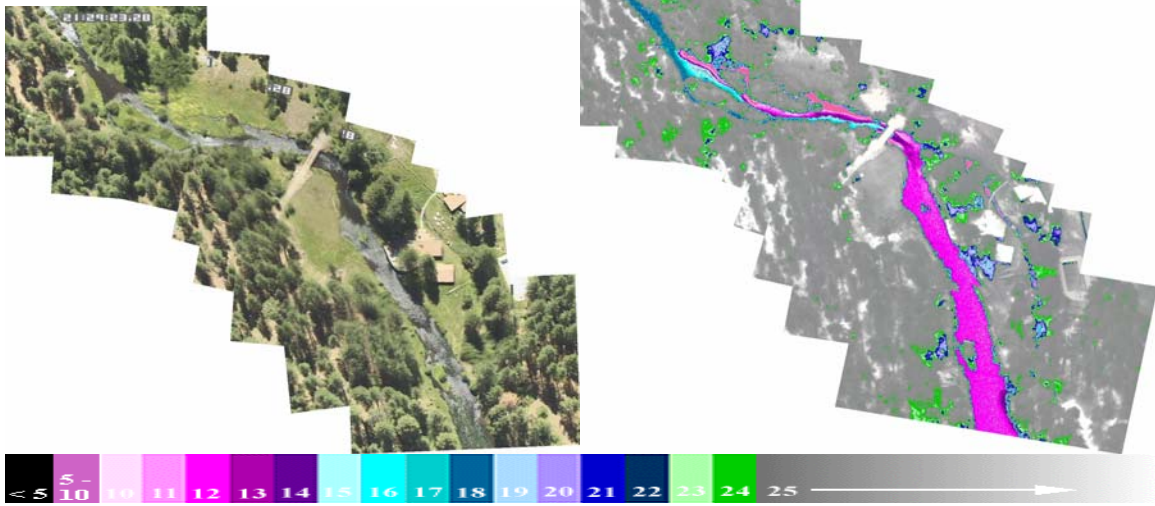


Frame: met1114 – At river mile 17.2, Whitewater River (14.4°C) empties into the left bank of the Metolius River (12°C).

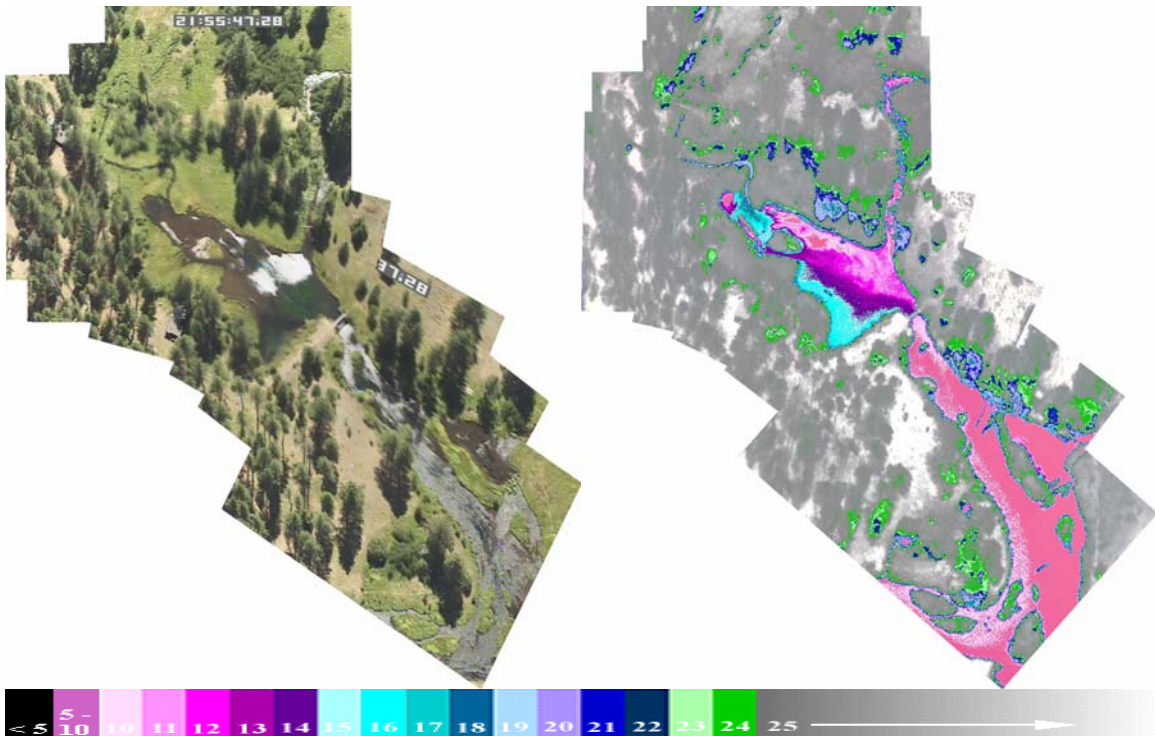


Frame: met1348-1364 – These mosaics show the Metolius River (12.5°C) at Lake Billy Chinook (21.7°C) at river mile 10.8. The image shows a transition from a mixed to thermally stratified condition.

## Lake Creek



Frame: lake0012-0019 – These mosaics show a spring ( $9.1^{\circ}\text{C}$ ) on the left bank of the South and Middle forks of Lake Creek ( $18.1^{\circ}\text{C}$ ) at river mile .2.



Frame: lake0563-0570 – This pair of mosaics shows two springs in the North Fork of Lake Creek ( $13.7^{\circ}\text{C}$ ) at river mile .1. The right bank spring was measured to be  $8.4^{\circ}\text{C}$  while the spring on the left bank is  $9.6^{\circ}\text{C}$ .