In[69]:=
```
filename = "ifgPS1_2p_22pt_300s_08Apr1538.tif";
(* box in, Indium 1.0mm + 0.8mm in path 1 *)
img = loadimage[basedir <> filename]; { Length[img], Length[img[[1]]], Length[img[[1, 1]]] }
res = fitgrid[img, 4, 4, 1, 9.8];
plotres[res]
```

Out[70]= {22, 40, 20}

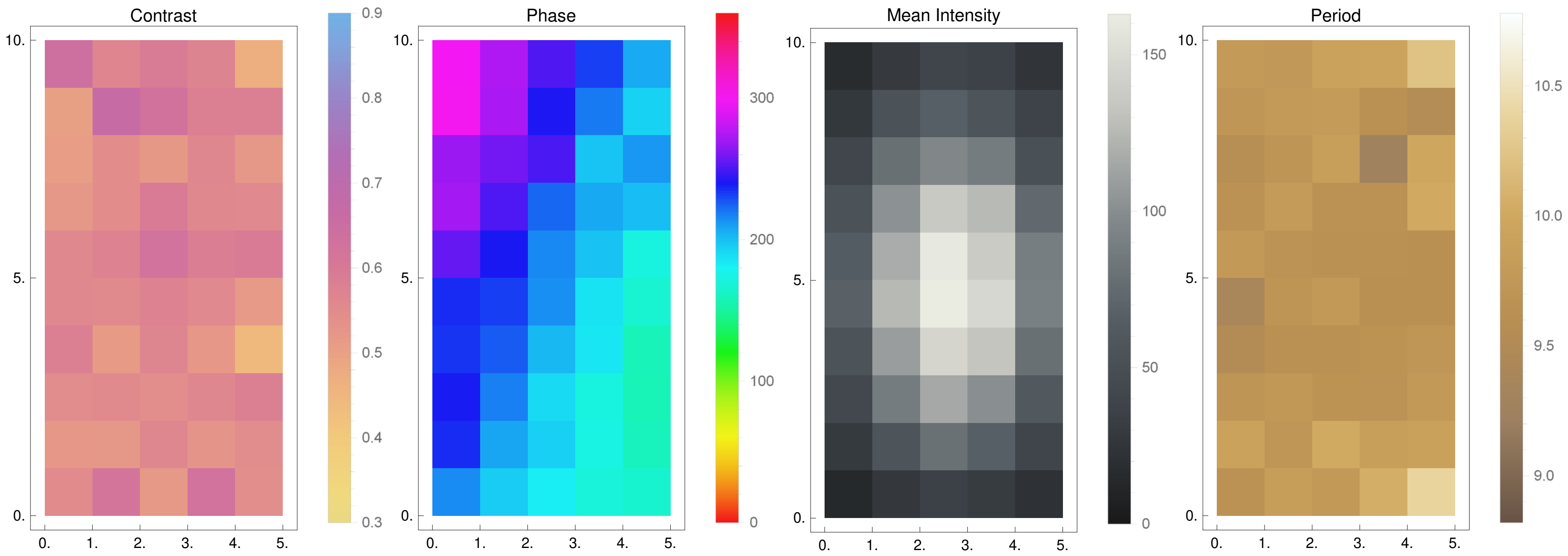
NonlinearModelFit::sszero : The step size in the search has become less than the tolerance prescribed by the PrecisionGoal option, but the gradient is larger than the tolerance specified by the AccuracyGoal option. There is a possibility that the method has stalled at a point that is not a local minimum. ≫

NonlinearModelFit::sszero : The step size in the search has become less than the tolerance prescribed by the PrecisionGoal option, but the gradient is larger than the tolerance specified by the AccuracyGoal option. There is a possibility that the method has stalled at a point that is not a local minimum. ≫

NonlinearModelFit::sszero : The step size in the search has become less than the tolerance prescribed by the PrecisionGoal option, but the gradient is larger than the tolerance specified by the AccuracyGoal option. There is a possibility that the method has stalled at a point that is not a local minimum. ≫

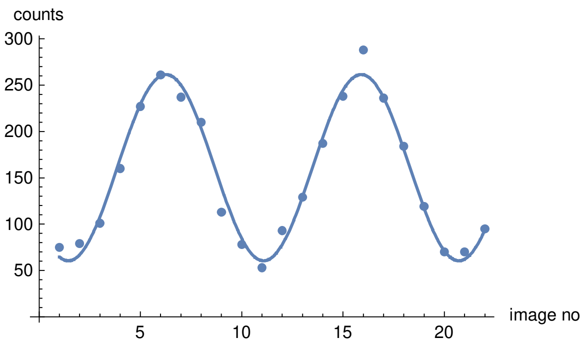
General::stop : Further output of NonlinearModelFit::sszero will be suppressed during this calculation. ≫

Out[72]=



In[73]:=
```
showtileres[res, 2, 5]
```

Out[73]=



	Estimate	Standard Error	t- Statistic	P- Value
CameraIfgPackage`Private`a	160.939	2.68805	59.8722	3.60646×10^{-22}
CameraIfgPackage`Private`b	100.481	3.64223	27.5877	3.51601×10^{-16}
CameraIfgPackage`Private`c	0.652171	0.00664499	98.1448	5.07208×10^{-26}
CameraIfgPackage`Private`d	−2.51417	0.0858547	−29.284	1.22809×10^{-16}

```
contr=0.624339
offs=160.939
phase=215.949°
period=9.63426
```

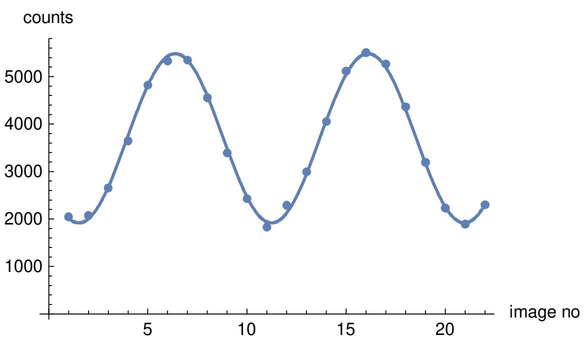
In[79]:=
```
(* average contrast *)
Total[Flatten[Map[#[[3]] &, res , {2}]]] / (5 * 10)
```

Out[79]= 0.557618

In[80]:=
```
(* integrated over whole beam *)
resinteg = fitgrid[img, 20, 40, 1, 9.8]
showtileres[resinteg, 0, 0]
```

Out[80]= {{{{2045, 2072, 2653, 3646, 4821, 5328, 5348, 4557, 3391, 2427, 1827, 2288, 2994, 4052, 5116, 5505, 5266, 4364, 3193, 2231, 1891, 2299},
FittedModel[3699.95 − 1782.73 Sin[2.55439 − 0.646453 CameraIfgPackage`Private`x]], 0.481826, 3699.95, 9.71948, 213.644, 9.8}}}

Out[81]=



	Estimate	Standard Error	t- Statistic	P- Value
CameraIfgPackage`Private`a	3699.95	15.8201	233.877	8.3702×10^{-33}
CameraIfgPackage`Private`b	1782.73	21.2255	83.9901	8.32075×10^{-25}
CameraIfgPackage`Private`c	0.646453	0.00224038	288.546	1.91009×10^{-34}
CameraIfgPackage`Private`d	−2.55439	0.0287152	−88.9559	2.96581×10^{-25}

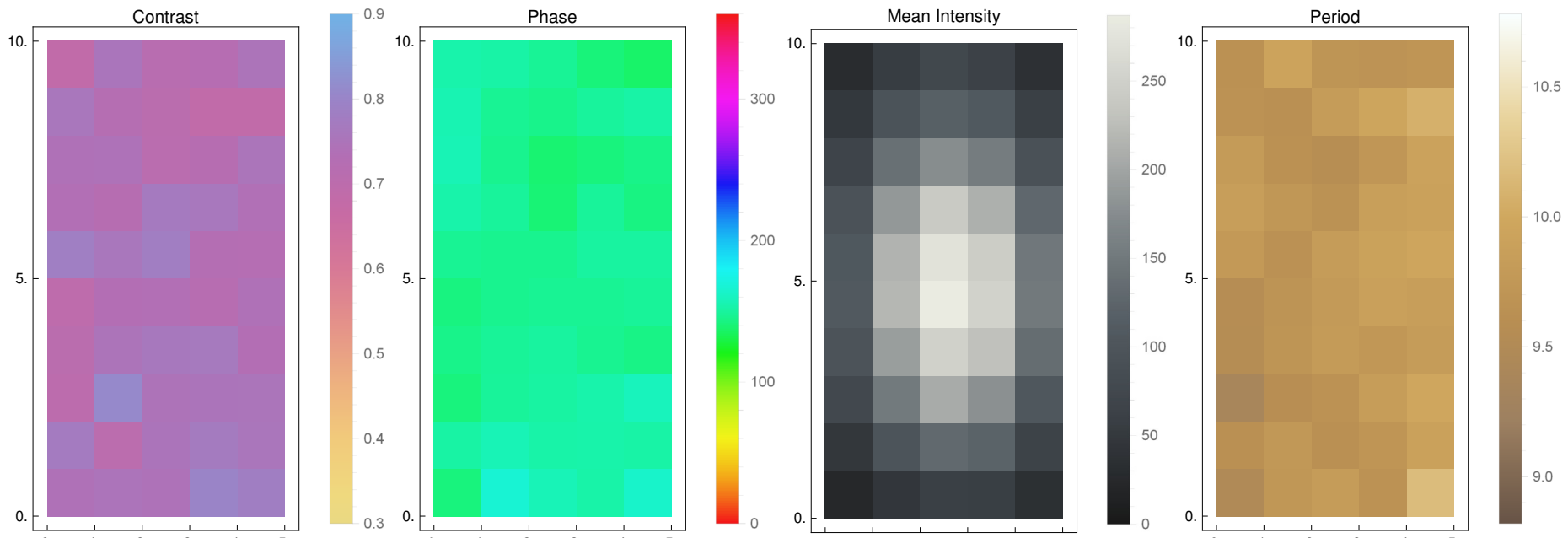
```
contr=0.481826
offs=3699.95
phase=213.644°
period=9.71948
```

In[82]:=
```
filename = "ifgPS1_2p_22pt_300s_08Apr1756.tif";
```

In[83]:=
```
(* box out *)
img = loadimage[basedir <> filename]; { Length[img], Length[img[[1]]], Length[img[[1, 1]]] }
res = fitgrid[img, 4, 4, 1, 9.8];
plotres[res]
```

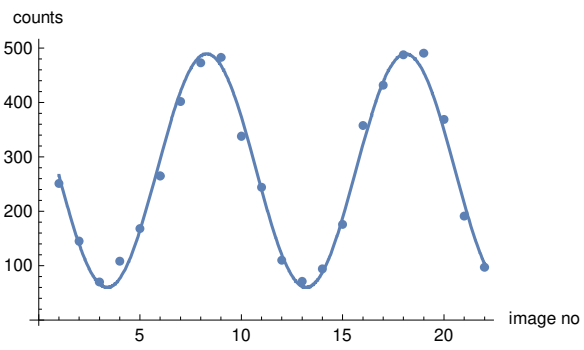
Out[83]= {22, 40, 20}

Out[85]=



In[86]:=
```
showtileres[res, 2, 5]
```

Out[86]=



	Estimate	Standard Error	t- Statistic	P- Value
CameraIfgPackage`Private`a	274.743	4.99394	55.0152	1.64065×10^{-21}
CameraIfgPackage`Private`b	214.838	7.22217	29.747	9.31023×10^{-17}
CameraIfgPackage`Private`c	0.640389	0.00476006	134.534	1.75016×10^{-28}
CameraIfgPackage`Private`d	2.54274	0.0634218	40.0926	4.66906×10^{-19}

```
contr=0.781962
offs=274.743
phase=145.688°
period=9.81151
```

In[87]:=
```
(* average contrast *)
Total[Flatten[Map[#[[3]] &, res , {2}]]] / (5 * 10)
```

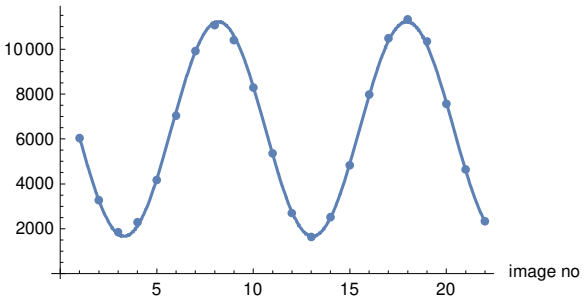
Out[87]= 0.741218

In[88]:=
```
(* integrated over whole beam *)
resinteg = fitgrid[img, 20, 40, 1, 9.8]
showtileres[resinteg, 0, 0]
```

Out[88]= {{{{6035, 3272, 1854, 2286, 4171, 7037, 9920, 11 067, 10 406, 8287, 5361, 2697, 1638, 2515, 4829, 7980, 10 483, 11 322, 10 346, 7567, 4637, 2335},

FittedModel[6443.48 + 4777.89 Sin[2.57847 + 0.643987 CameraIfgPackage`Private`x]], 0.741508, 6443.48, 9.7567, 147.735, 9.8}}}

Out[89]=



	Estimate	Standard Error	t- Statistic	P- Value
CameraIfgPackage`Private`a	6443.48	24.4238	263.82	9.57707×10^{-34}
CameraIfgPackage`Private`b	4777.89	35.2486	135.548	1.52895×10^{-28}
CameraIfgPackage`Private`c	0.643987	0.00106157	606.637	2.97049×10^{-40}
CameraIfgPackage`Private`d	2.57847	0.0140152	183.976	6.28125×10^{-31}

```
contr=0.741508
offs=6443.48
phase=147.735°
period=9.7567
```