Dark Energy Survey Operations
News since 02/2/15
(previous All-DES Meeting)

• DES Observers: Marcelle Soares-Santos, Chihway Chang
• 1st Half-night every night 2/7 through 2/15
• Emphasis on Obstac filling in the small holes in the east side of the Y1+Y2 fields
• For SN, observe only the C-fields.
• DES Ops New “Bragging Rights”
  https://cdcvs.fnal.gov/redmine/projects/desops/wiki/Bragging_rights_(ie_seeing_results)
  – A very modest observer team
  – Best images ever declared bad =>
  Most careful checking of DQ!
  e.g. hexed 718-258 r-band has been observed 5 times (all bad?). Nope.
• We finished Y2 late at night of Feb. 15th
Y2 Observing Summary  
(up-to-date)

- DES has had 105 (½?) scheduled observing nights.

<table>
<thead>
<tr>
<th>Month</th>
<th># Nights</th>
<th>Total Hours</th>
<th>Hours Observing</th>
<th>Lost Camera or Telescope</th>
<th>Lost Obs. Error</th>
<th>Lost Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug.</td>
<td>9</td>
<td>92 ¾</td>
<td>58 ¾</td>
<td>0</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>Sept.</td>
<td>18</td>
<td>181 ¼</td>
<td>122 ¼</td>
<td>¾</td>
<td>0</td>
<td>58 ¼</td>
</tr>
<tr>
<td>Oct.</td>
<td>21</td>
<td>201 ½</td>
<td>165 ½</td>
<td>2 ¼</td>
<td>¼</td>
<td>33 ½</td>
</tr>
<tr>
<td>Nov.</td>
<td>21</td>
<td>178</td>
<td>163 ¼</td>
<td>½</td>
<td>0</td>
<td>14 ¼</td>
</tr>
<tr>
<td>Dec.</td>
<td>18</td>
<td>131 ¼</td>
<td>130 ¾</td>
<td>½</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Jan.</td>
<td>14</td>
<td>105 ¼</td>
<td>103 ½</td>
<td>1 ¾</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Feb.</td>
<td>4 ½</td>
<td>38 ¾</td>
<td>38 ½</td>
<td>¼</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>928 ¾</td>
<td>782 ½</td>
<td>6</td>
<td>¼</td>
<td>140</td>
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</table>

<table>
<thead>
<tr>
<th>% Total</th>
<th>% Hours</th>
<th>% Observing</th>
<th>% Obs. Error</th>
<th>% Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>84.2%</td>
<td>0.6 %</td>
<td>0%</td>
<td>15.1%</td>
</tr>
</tbody>
</table>
Aug. to Nov. Even when we observed, we often had partially cloudy conditions. Not clouded out since.

<table>
<thead>
<tr>
<th></th>
<th>Nights</th>
<th># WF Images</th>
<th># WF Good (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug.</td>
<td>9</td>
<td>1382</td>
<td>955 (69%)</td>
</tr>
<tr>
<td>Sep.</td>
<td>18</td>
<td>3023</td>
<td>2056 (68%)</td>
</tr>
<tr>
<td>Oct.</td>
<td>21</td>
<td>3297</td>
<td>2369 (72%)</td>
</tr>
<tr>
<td>Nov.</td>
<td>21</td>
<td>3555</td>
<td>2764 (78%)</td>
</tr>
<tr>
<td>Dec.</td>
<td>18</td>
<td>3442</td>
<td>3283 (95%)</td>
</tr>
<tr>
<td>Jan.</td>
<td>14</td>
<td>2230</td>
<td>2190 (98%)</td>
</tr>
<tr>
<td>Feb.</td>
<td>4 ½</td>
<td>859</td>
<td>831 (97%)</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>17788</td>
<td>14447 (81%)</td>
</tr>
</tbody>
</table>

Lt Blue: last Yr, Dk blue: this Yr, Red: last night
• Filling in nicely except for the central hole.
• A few straggler one-wide spots. Stripe 82 now more uniform
• Notice (green) 5+ in r-, i-, z- and especially Y-band.
Y2 WF Survey Status after 02/14/15

- Filling in nicely except for the central hole.
- Stripe 82 now more uniform. Holes filled-in especially recently.
- Notice (green) 5+ in all bands on east edge, especially Y-band

Tendency to be declared bad and maybe in g-band, too.
Simulated
Y2 WF Survey Status after 02/15/15

If no change to survey strategy

- It’s interesting to compare this simulation of Y2, made four or five weeks ago, with what we got.
- We got more than the simulation predicted.
Y2 WF Survey Status Comments

- By this time we expect to have observed all of the survey field 4 times.
- We have a hole in the central blob.
- We are overloaded on the eastern end particularly in z and Y-bands.
- In Y2 we had 11 more (preliminary) good images (Y1 = 14436) but significantly more riz this year than last.
Y2 WF Survey Status Comments

- In Y2 we had 11 more (preliminary) good images (Y1 = 14436) but significantly more riz this year than last.
- Preliminary count of good exposures (error bar is +100, -10)
- Fully on-track is 6418 good images per band (32090 total)
- $28883/32090 = 90.0\%$

<table>
<thead>
<tr>
<th></th>
<th>g</th>
<th>r</th>
<th>i</th>
<th>z</th>
<th>Y</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>3048</td>
<td>2512</td>
<td>2716</td>
<td>2841</td>
<td>3319</td>
<td>14436</td>
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<tr>
<td>Y2</td>
<td>2736</td>
<td>3014</td>
<td>3013</td>
<td>2888</td>
<td>2796</td>
<td>14447</td>
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<tr>
<td>Total</td>
<td>5784</td>
<td>5526</td>
<td>5729</td>
<td>5729</td>
<td>6115</td>
<td>28883</td>
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</table>
Y2 SN Survey Status

• SN observing going well.
• Because we are taking “½-nights” now, SN is getting a bigger fraction of all DES observing than full-nights.
• Turned off the E, S, and X-fields.
• Keep the C-fields (furthest east) on to end.

Since Jan. 1, 2015 ~570/572 SN exposures good
Some Y2 DES Observers
More
Summary

• DES Y2 is done
  – A slow start to Y2 because of unusually cloudy weather has been partially compensated for by a very good December through February
  – A lot of work from he Observers, desdm, CTIO, and the rest of Ops.
  – Thank-you from me to you all.

• We’ll start thinking about how to do it better in Y3.

• Meanwhile:
  – New 4MAP LUT tested in February engineering. To be installed in March eng.
Progress on Improvements for DECam/Blanco for Y2

New Dome Environmental Controls: 2 large glycol-cooled air-handlers will better maintain the primary mirror at or just below the air-temperature, minimal temperature gradient within the dome, and internal and external air temperatures matched. Finished, now commissioning automatic controls.

New Primary Mirror Support Pad air-pressure controls

✔ The present system controls mirror shape depending on gravity vector with an astigmatic correction. 33 of 33 with higher resolution air-pad controls installed. Perhaps some improvement in seeing is already being attained.


✔ New Hexapod Look-Up-Table (change from default vs Hour Angle and DEC was applied during Jan. 4-5 engineering (decreases Coma).

✔ New 4MAP LUT tested (decreases astigmatism)
  – New 4MAP LUT to be installed in March engineering period
  – Aaron Roodman, Roberto Tighe, Alistair have a big role in this.