TABLE 1

The fields observed with SPT-SZ between 2008 and 2011

<table>
<thead>
<tr>
<th>Name</th>
<th>R.A. (°)</th>
<th>Decl. (°)</th>
<th>ΔR.A. (°)</th>
<th>ΔDecl. (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ra5h30dec-55</td>
<td>82.7</td>
<td>-55.0</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>ra23h30dec-55</td>
<td>352.5</td>
<td>-55.0</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>ra21hdec-60</td>
<td>315.0</td>
<td>-60.0</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>ra3h30dec-60</td>
<td>52.5</td>
<td>-60.0</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>ra21hdec-50</td>
<td>315.0</td>
<td>-50.0</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>ra4h10dec-50</td>
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<td>-50.0</td>
<td>25</td>
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<tr>
<td>ra0h50dec-50</td>
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<tr>
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<td>-50.0</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>ra1hdec-60</td>
<td>15.0</td>
<td>-60.0</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>ra5h30dec-45</td>
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</tr>
<tr>
<td>ra6h30dec-55</td>
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<td>-55.0</td>
<td>15</td>
<td>10</td>
</tr>
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<td>-62.5</td>
<td>30</td>
<td>5</td>
</tr>
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<td>-42.5</td>
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<td>5</td>
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<td>10</td>
</tr>
<tr>
<td>ra23hdec-45</td>
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<tr>
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<td>-42.5</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>ra1hdec-42.5</td>
<td>15.0</td>
<td>-42.5</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>ra6h30dec-45</td>
<td>97.5</td>
<td>-45.0</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

Note. — The locations and sizes of the fields observed by the SPT between 2008 and 2011. For each field we give the center of the field in Right Ascension (R.A.) and declination (decl.), and the nominal extent of the field in Right Ascension and declination.

Fig. 2.— The SPT was used to observe 2500 deg² over 19 individual fields, which are overlaid here on an orthographic projection of the IRAS 100 µm dust map from Schlegel et al. (1998). These observation fields were chosen to lie in regions of low dust emission (dark red).

TOD are recorded at 100 Hz and have a Nyquist frequency of 50 Hz, which corresponds to a multipole number parallel to the scan direction (ℓx) between 72,000 and 43,000 at the SPT scan speeds. Since we only report the power spectrum up to ℓ = 3000, we can benefit computationally by reducing the sampling rate. We choose a low-pass filter and down-sampling factor based on each field’s scan speed such that they affect approximately the same angular scales. We use a down-sampling factor of 6 for 2008 and 2009, and 4 for 2010 and 2011 with associated low-pass filter frequencies of 7.5 and 11.4 Hz respectively. These filtering choices remove a negligible amount of power in the signal band.

Next, the down-sampled TOD are bandpass filtered between ℓx = 270 and 6600. The low-pass filter is necessary to avoid aliasing high-frequency noise to lower frequencies during map-making. The high-pass filter reduces low-frequency noise from the atmosphere and instrumental readout. The high-pass filter is implemented by fitting each bolometer’s TOD (from a single azimuthal scan across the field) to a model consisting of low-frequency sines and cosines and a fifth-order polynomial. The best-fit model is then subtracted from the TOD. During the filtering, we mask regions of sky within 5 arcminutes of point sources with fluxes of S_{150GHz} > 50 mJy. These regions are also masked in the power spectrum analysis, see §3.2.

At this stage, the TOD retain signal from the atmosphere that is correlated between detectors. We remove the correlated signal by subtracting the mean signal across each detector module for every time sample.28 This process acts as an approximately isotropic high-pass filter.

The filtered TOD are made into maps using the process described by K11. The data from each detector re-