

1 The Board of Directors recommends this resolution be sent to a Committee of the General
2 Synod.

3
4 **RESPONSIBLE STEWARDSHIP OF THE OUTER SPACE ENVIRONMENT**

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6 **Submitted by the Central Association of the Massachusetts Conference**
7 **of the United Church of Christ**
8 **A Resolution of Witness**
9

10 **SUMMARY**

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12 This resolution calls upon the United Church of Christ to become the first religious body to
13 promote a sustainable outer space environment through education and advocacy.

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15 Orbital space is a valuable natural resource, serving as home to the International Space Station,
16 the Fermi space telescope, and to nearly one thousand satellites owned by fifty nations that are
17 essential to communications, managing disasters, forecasting weather, monitoring climate
18 change, and fostering sustainable development.

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20 The expanded utilization of space for scientific, social, economic, and military purposes has
21 created major challenges for the international community in its stewardship of space. Key orbits
22 have become congested with debris, or space junk.

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24 The U.S. Space Surveillance Network tracks roughly 23,000 pieces of debris that are ten
25 centimeters in diameter or larger. An additional 500,000 objects larger than a centimeter also
26 orbit Earth and there are millions of even smaller fragments.

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28 Larger objects include defunct satellites and rocket bodies. Smaller objects include stray nuts and
29 bolts, discarded camera lens caps, and paint flecks.

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31 Given the speed of orbital objects, a piece of metal debris the size of a marble can destroy or
32 disable a spacecraft. Even a paint fleck traveling at 17,500 miles per hour can be fatal to a
33 space-walking astronaut.

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35 To date, eight satellites have been destroyed or disabled by debris. International Space Station
36 crews have jumped into escape capsules on three occasions when debris orbited too close for
37 comfort. And NASA's \$690 million dollar Fermi space telescope was nearly hit by a dead
38 Russian spy satellite in 2012.

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40 A report from the National Research Council (NRC) says the debris problem has reached a
41 tipping point in low Earth orbit (LEO) where earth observing satellites and the International
42 Space Station reside. The density of debris is so great that collisions generate additional pieces of
43 debris faster than atmospheric drag removes them from orbit. Additional debris particles increase
44 the frequency of collisions and the risk of spacecraft failure. According to Donald Kessler, who
45 led the NRC study, we've lost control of the space environment.ⁱ
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47 The immediate challenge before the international community is to stabilize the LEO
48 environment. The NRC calls for research into how to remove large existing objects from orbits
49 where collisions are most likely to occur. This would reduce the volume of material from which
50 new debris can be created. Also needed are international agreements to limit the creation of
51 debris, including a ban on anti-satellite weapons testing.

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53 For now, there is no solution for removing debris from orbit that is technologically feasible or
54 economically viable. Moreover, there are serious obstacles to diplomatic progress on potential
55 agreements such as the Draft International Code of Conduct for Outer Space Activities that
56 would encourage responsible behavior in space.ⁱⁱ

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58 The biggest challenge now, according to some scientists and policy makers, is educating the
59 general public to understand that space debris is a serious problem that should be addressed with
60 a sense of urgency. U.S. State Department official, Frank Rose, warns: “Unless we take action
61 soon, if there are a number of other collisions, we could be in a situation ten or fifteen years from
62 now where low Earth orbit is just too difficult to maneuver, which would have a dramatic impact
63 on people’s daily lives.”ⁱⁱⁱ

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65 **BIBLICAL, THEOLOGICAL, AND HISTORICAL GROUNDING**

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67 Human beings are part of a cosmic story that began with the Big Bang and led over billions of
68 years to the emergence of galaxies, stars, atoms, molecules, and life. The landmark United
69 Church of Christ pastoral letter on faith and science incorporates this perspective: “When we
70 behold the depths of space, we hear the words of Genesis and of a God who creates by speaking
71 the universe into existence. Stunning images of deep space are like new windows on creation.”^{iv}

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73 Brian Thomas Swimme and Mary Evelyn Tucker believe the story of the universe has the power
74 to awaken us more deeply to who we are. Because the elements of our bodies emerged from
75 stellar explosions called supernovae, we can affirm we are the descendants of stars. We exist
76 because of the creative, self-organizing dynamism of matter through which molten rocks
77 transformed themselves into monarch butterflies and the music of Mozart. We are the universe in
78 the form of human beings, Swimme and Tucker say. We are the universe reflecting upon itself.^v

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80 This science-based story about the emergence of the complex systems of life challenges
81 Christianity and other religious traditions to expand their view of human responsibility. We are
82 to love and give ourselves not only to our human neighbors and enemies, the late theologian
83 Gordon Kaufman wrote, but also to the wider orders of natural life in which we find ourselves. If
84 God is understood as the creativity manifest in the cosmos and we understand ourselves to be
85 embedded in and sustained by the web of life on planet Earth, then we need to shape our
86 attitudes and activities to fit properly into this web of living creativity and contribute to its
87 ongoing development.^{vi}

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89 From pioneering work on environmental racism in the 1980s to General Synod’s resolution
90 urging divestment from fossil fuel companies in 2013, the United Church of Christ has steadily
91 expanded and enriched the concept of environmental justice for its members, for those of other
92 faith communities, and for the general public. The urgent need for humanity to enlarge its

93 environmental perspective to encompass outer space as well as Earth provides the United Church
94 of Christ with yet another opportunity to exercise its prophetic vocation.

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96 **MUTUAL ACCOUNTABILITY**

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98 The Thirtieth General Synod of the United Church of Christ will request that educational
99 materials developed by Justice and Witness Ministries be presented to the Thirty-First General
100 Synod with suggestions for how the United Church of Christ might undertake various forms of
101 action.

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103 **INSTITUTIONAL CAPACITY**

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105 The Thirtieth General Synod of the United Church of Christ will request that Justice and Witness
106 Ministries prepare educational materials for the churches.

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108 **PROBABILITY OF INFLUENCING SOCIAL CHANGE**

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110 With the adoption of this resolution, the Thirtieth General Synod of the United Church of Christ
111 will register its concern about the degradation of the outer space environment and the United
112 Church of Christ will take steps to educate its members to advocate for a sustainable space
113 environment. The United Church of Christ will extend its influence by sending copies of the
114 resolution to its ecumenical, interfaith and civil society partners and inviting them to join the
115 United Church of Christ in efforts to promote outer space sustainability.

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117 **TEXT OF MOTION**

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119 WHEREAS previous General Synods of the United Church of Christ have acknowledged
120 humanity's moral obligation to be faithful stewards of God's creation; and

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122 WHEREAS the United Church of Christ's pastoral letter on faith and science provides a
123 theological basis for enlarging our ethical perspective on creation to incorporate outer space; and

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125 WHEREAS a sustainable space environment is necessary for many activities essential to human
126 flourishing; and

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128 WHEREAS the long-term sustainability of the space environment is at risk from space debris
129 and irresponsible conduct; and

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131 WHEREAS timely action is required to stabilize the space environment, particularly low Earth
132 orbit...

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134 THEREFORE, BE IT RESOLVED that the Thirtieth General Synod of the United Church of
135 Christ expresses its concern about the degradation of the outer space environment and its
136 dangerous implications for humanity;

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138 BE IT FURTHER RESOLVED that the Thirtieth General Synod of the United Church of Christ
139 requests that Justice and Witness Ministries prepare educational materials for the churches on the
140 subject of outer space sustainability;

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142 BE IT FURTHER RESOLVED that the Thirtieth General Synod of the United Church of Christ
143 requests that educational materials developed by Justice and Witness Ministries be presented to
144 the Thirty-First General Synod with suggestions for how the United Church of Christ might
145 undertake various forms of action;

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147 BE IT FINALLY RESOLVED THAT the Thirtieth General Synod of the United Church of
148 Christ requests that Justice and Witness Ministries send copies of this resolution to its
149 ecumenical, interfaith, and civil society partners and invite them to join the United Church of
150 Christ in its efforts to promote outer space sustainability.

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152 **FUNDING**

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154 Funding for the implementation of this Resolution will be made in accordance with the overall
155 mandates of the affected agencies and the funds available.

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157 **IMPLEMENTATION**

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159 The Officers of the Church, in consultation with appropriate ministries or other entities within
160 the United Church of Christ, will determine the implementing body.

ⁱ National Research Council of the National Academies, *Limiting Future Collision Risk to Spacecraft: An Assessment of NASA's Meteoroid and Orbital Debris Programs* (Washington, D.C. The National Academies Press, 2011), 1-6.

ⁱⁱ Draft International Code of Conduct for Outer Space Activities, [http://www.eeas.europa.eu/non-proliferation-and-disarmament/pdf/space code conduct draft vers 31-march-2014 en.pdf](http://www.eeas.europa.eu/non-proliferation-and-disarmament/pdf/space_code_conduct_draft_vers_31-march-2014_en.pdf)

ⁱⁱⁱ Frank Rose as quoted in Jamie Crawford, "Space Junk Diplomacy," <http://security.blogs.cnn.com/2012/07/02/future-of-space-a-concern-for-u-s/>

^{iv} John H. Thomas and the United Church of Christ Science and Technology Network, *A New Voice Arising: A Pastoral Letter on Faith Engaging Science and Technology* (United Church of Christ, 2008), <http://www.ucc.org/not-mutually-exclusive/pdfs/pastoral-letter.pdf/>, 1.

^v Brian Thomas Swimme and Mary Evelyn Tucker, *Journey of the Universe: An Epic Story of Cosmic, Earth, and Human Transformation* (New Haven, Yale University Press, 2011), 11-14 and 76-80.

^{vi} Gordon D. Kaufman, *In the beginning...Creativity* (Minneapolis, Fortress Press, 2004), 100-106 and 119-127.

To learn more, please visit www.protectouterspace.com, a website operated by the Worcester Area Mission Society (WAMS) of the United Church of Christ in Worcester, Massachusetts.