

INTERNATIONAL CLOUD WELFARE COMMISSION

POLICY BRIEF 01

Visible Means of Support

Public Confidence, Atmospheric Suspension and the Physical Basis of Cloud Persistence

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For Healthy Skies and Shared Tomorrows

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This Policy Brief applies the evidentiary and recognition framework established by Commission Statement 2026/01 to the question of apparent cloud suspension and visible structural support.

EXECUTIVE SUMMARY

Visible Means of Support

Pursuant to Article 4 of Commission Statement 2026/01, the International Cloud Welfare Commission recognizes clouds as atmospheric participants irrespective of permanence, intention, economic productivity or capacity for direct representation within human institutions.

Recognition of atmospheric participation does not, however, resolve a separate matter of public concern: clouds routinely remain at considerable altitude without any visible structural means of support.

The Commission considers this concern understandable.

Unlike bridges, elevated platforms, aircraft, towers and other human structures occupying space above the Earth's surface, clouds possess no visible columns, cables, foundations, suspension systems or mechanical lifting apparatus. Their continued presence therefore appears, to an observer unfamiliar with atmospheric microphysics, to occur without an immediately identifiable supporting mechanism.

The Commission finds that this appearance is misleading.

Clouds consist of extremely small liquid droplets, ice crystals, or combinations thereof. Their constituent particles do experience gravity and are not exempt from ordinary physical law. However, because typical cloud droplets are extraordinarily small, aerodynamic drag substantially limits their downward velocity. Weak vertical air motion, turbulence and continuing processes of condensation and evaporation can therefore maintain a population of cloud particles within an atmospheric region for substantial periods.

The appropriate conclusion is consequently not that clouds possess **no means of support**, but that the means by which they remain aloft are generally **distributed, dynamic and not visible to unaided human observation**.

The Commission further finds that popular descriptions of clouds as simply "floating" may contribute to unnecessary ambiguity by obscuring the physical mechanisms governing their persistence.

Accordingly, this Policy Brief recommends that public-facing atmospheric communication distinguish more carefully between apparent suspension and literal absence of support, and that cloud persistence be described as an emergent consequence of particle size, aerodynamic drag, vertical air motion, atmospheric moisture and continuing microphysical processes.

The Commission does not presently recommend the installation of physical support infrastructure beneath existing cloud formations.

1. Purpose

1.1 This Policy Brief has been prepared pursuant to Articles 4, 6, 8 and 10 of Commission Statement 2026/01.

1.2 Its purpose is to examine the apparent absence of visible structural support beneath cloud formations and to determine whether that absence constitutes a substantive atmospheric concern or, alternatively, a matter of public communication and interpretation.

1.3 Consistent with Article 8 of Commission Statement 2026/01, this Brief distinguishes between established atmospheric science and Commission-developed policy interpretation. The physical processes described herein are matters of atmospheric science. The treatment of visible support as a matter of institutional confidence is a Commission-developed analytical framework.

1.4 This Brief does not investigate atmospheric support as a metaphorical, financial or emotional concept. Those matters fall outside its present scope.

2. The Question of Visible Support

2.1 A cloud may contain a substantial quantity of condensed water while remaining visibly separated from the Earth's surface.

2.2 This creates an intuitive problem. Human-built objects of appreciable mass ordinarily require visible support, propulsion, attachment or another readily identifiable mechanism to remain above the ground.

2.3 Clouds do not display equivalent structures.

2.4 The Commission therefore considers it necessary to distinguish between **visible means of support** and **physical mechanisms of persistence**.

2.5 The absence of the former does not establish the absence of the latter.

2.6 Pursuant to Article 4.5 of Commission Statement 2026/01, a cloud need not establish permanent residence or demonstrate economic contribution in order for its presence to warrant consideration. The Commission now further clarifies that a cloud need not display visible structural support in order for its continued atmospheric presence to be physically explicable.

3. What a Cloud Is

3.1 A cloud is composed of a large number of very small liquid water droplets, ice crystals, or a combination of both.

3.2 Cloud droplets form when atmospheric water vapour condenses onto cloud condensation nuclei under suitable conditions of moisture and temperature. Typical cloud droplets are extremely small; National Weather Service instructional material describes cloud droplets with radii of approximately 20 micrometres or less.

3.3 The appearance of a cloud as a single coherent object can therefore be misleading. A cloud is better understood as an atmospheric region containing enormous numbers of small particles that may be forming, moving, evaporating, colliding, growing and being replaced over time.

3.4 The question 'Why does the cloud not fall?' consequently treats the cloud too much like a single solid body.

3.5 A more physically useful question is why the cloud's constituent particles do not immediately descend to the ground.

4. Gravity Has Not Been Suspended

4.1 The Commission confirms that gravity continues to apply to clouds.

4.2 The Commission has found no credible scientific evidence indicating that cloud formations are granted exemptions from gravitational acceleration.

4.3 Individual cloud droplets and ice particles are subject to gravitational force and tend to move downward relative to the surrounding air.

4.4 Their downward motion is, however, opposed by aerodynamic drag. As a falling particle accelerates, drag increases until a characteristic terminal velocity is reached.

4.5 Because cloud droplets are extremely small, this terminal velocity can also be extremely small. National Weather Service instructional material gives an average cloud-droplet terminal fall velocity of approximately 1.3 centimetres per second in still air and notes that a droplet falling from a low cloud base of 500 metres would require more than ten hours to reach the ground.

4.6 Typical cloud-droplet fall speeds may therefore be smaller than the vertical velocities present within rising or turbulent air.

4.7 The relevant physical conclusion is not that gravity has ceased to operate, but that gravitational settling may occur slowly enough to be offset, delayed or continually reorganized by atmospheric motion and cloud microphysical processes.

5. The Role of Atmospheric Motion

5.1 The atmosphere is not stationary.

5.2 Vertical air currents, convection and turbulence can move air upward at velocities greater than the settling velocity of small cloud particles.

5.3 Where upward air motion equals or exceeds a particle's downward terminal velocity, that particle may remain at approximately the same altitude or move upward relative to the ground.

5.4 The Commission recognizes upward-moving air as a legitimate atmospheric means of support notwithstanding its general invisibility to unaided human observation.

5.5 Such support should not be confused with mechanical suspension. No cable, platform or rigid structure is required. Rather, the relevant condition is a moving fluid exerting forces upon very small particles.

5.6 The same principle can extend even to precipitation particles. NASA notes that sufficiently strong upward wind can prevent some precipitating raindrops from falling relative to the ground.

5.7 The Commission therefore rejects any general claim that an object or particle must possess visible structural support in order to maintain altitude within a moving atmosphere.

6. Clouds Are Also Continually Replacing Themselves

6.1 Cloud persistence should not be confused with material permanence.

6.2 A visible cloud formation may remain recognizable while the individual droplets or ice particles composing it change over time.

6.3 Moist air may enter a cloud region and form new droplets while other droplets evaporate, precipitate or leave the region.

6.4 The continued visibility of the formation therefore does not require every constituent particle to remain fixed in place.

6.5 The Commission considers this analogous, in strictly physical rather than legal terms, to the persistence of a river whose visible form remains recognizable despite continuous replacement of the water passing through it.

6.6 This understanding is consistent with Article 4.3 of Commission Statement 2026/01, which provides that atmospheric participation shall not depend upon permanence.

7. When Support Becomes Insufficient

7.1 Atmospheric support of cloud particles is not indefinite.

7.2 Cloud droplets may grow through condensation, collision and coalescence, while ice particles may grow through additional microphysical processes.

7.3 As particles become larger, their terminal fall velocities generally increase.

7.4 National Weather Service instructional material contrasts a typical cloud droplet of approximately 0.02 millimetres with a typical raindrop of approximately 2 millimetres. The corresponding increase in volume is on the order of one million times. At sufficient size, particles may no longer remain supported by the surrounding air and precipitation occurs.

7.5 NASA reports that the terminal speed of the largest raindrops in still air can approach approximately 10 metres per second.

7.6 The Commission therefore finds that precipitation should not be interpreted as structural failure of a cloud.

7.7 Precipitation is a normal atmospheric process by which sufficiently large liquid or solid particles leave a cloud and descend toward the Earth's surface.

7.8 The Commission presently sees no basis for issuing notices of non-compliance to raining clouds solely on the ground that atmospheric support has ceased to retain all constituent water.

8. Public Confidence and the Language of "Floating"

8.1 The Commission recognizes that common public descriptions frequently state that clouds “float.”

8.2 The term is convenient but imprecise.

8.3 Clouds are not generally floating in the same manner as a low-density object floats upon a liquid surface. Rather, individual particles settle through air at rates determined by their size, shape and atmospheric conditions, while air currents, turbulence, condensation and evaporation continuously influence the cloud as a whole.

8.4 The Commission does not recommend prohibiting the term “floating” in ordinary conversation.

8.5 It does recommend that scientific and educational communication avoid implying that clouds remain aloft through an unexplained suspension mechanism.

8.6 A lack of visible infrastructure should not become a lack of public understanding.

9. Assessment of Structural Risk

9.1 The Commission finds no general indication that ordinary cloud formations require artificial structural intervention.

9.2 The physical mechanisms governing cloud-particle suspension, settling, growth, evaporation and precipitation are well described by atmospheric science and do not presently indicate an unresolved engineering deficiency.

9.3 The requirement for terrestrial cloud-support infrastructure is therefore assessed as: **Not Demonstrated**.

9.4 This finding should not be interpreted to mean that clouds are permanently stable or fixed.

9.5 Clouds are dynamic atmospheric formations. Transformation, movement, precipitation and dissipation are expected features of their existence.

9.6 No cloud shall be considered deficient solely because it changes shape, altitude or geographic position.

10. Policy Recommendations

10.1 Public communication should distinguish between visible structural support and physical atmospheric support.

10.2 Explanations of cloud persistence should identify the relevance of particle size, terminal velocity, aerodynamic drag, vertical air motion and continuing cloud microphysical processes.

10.3 Descriptions suggesting that clouds 'defy gravity' should be avoided in scientific and educational contexts except where clearly figurative.

10.4 Precipitation should not be presented as evidence that a cloud has fallen from the sky.

10.5 Public education should emphasize the distinction between a cloud as a visible atmospheric region and the behaviour of the individual particles within that region.

10.6 No recommendation is made at this time for the installation of columns, suspension cables, scaffolding, buoyancy devices, emergency nets or other artificial infrastructure beneath existing cloud formations.

10.7 Should credible evidence emerge demonstrating a widespread failure of naturally occurring atmospheric support mechanisms, the Commission may reconsider this position pursuant to Article 8.3 of Commission Statement 2026/01.

11. Conclusion

11.1 The underlying question addressed by this Brief is legitimate even where its intuitive framing is incomplete.

11.2 Clouds possess mass and remain subject to gravity. Their continued presence at altitude therefore warrants physical explanation.

11.3 Atmospheric science provides that explanation.

11.4 Cloud droplets are sufficiently small that their terminal fall velocities can be very low, while vertical air motion, turbulence and continuing microphysical processes can maintain or replenish cloud particles within an atmospheric region.

11.5 Cloud persistence therefore has identifiable physical means of atmospheric support even where those means are not visible as discrete structures.

11.6 The lack of visible support should consequently be understood as an observational limitation rather than evidence of atmospheric negligence.

11.7 Pursuant to Article 4 of Commission Statement 2026/01, the Commission further affirms that the question of how clouds remain present should begin with recognition of their participation rather than an assumption that unexplained presence constitutes structural non-compliance.

11.8 The clouds are supported.

11.9 The support is simply atmospheric.

SCIENTIFIC AND INSTITUTIONAL SOURCES

Sources Supporting Policy Brief 01

Consistent with Article 8 of Commission Statement 2026/01, the Commission distinguishes established atmospheric science from Commission-developed policy interpretation. The following sources support the scientific statements used in this Brief.

1. National Weather Service. *Cloud Development.*
https://www.weather.gov/source/zhu/ZHU_Training_Page/clouds/cloud_development/clouds.htm
Cloud composition, droplet scale, terminal fall velocity and persistence in ascending air.

2. National Weather Service. *Cloud Precipitation / Precipitation Ladder instructional material.*
https://www.weather.gov/source/zhu/ZHU_Training_Page/clouds/cloud_precipitation/cloud_precipitation.pdf
Cloud-droplet and raindrop scale; growth toward precipitation.

3. National Oceanic and Atmospheric Administration. *JetStream - How Clouds Form.*
https://prod-01-alb-www-noaa.woc.noaa.gov/jetstream/clouds/how-clouds-form
Condensation nuclei, rising and cooling air, and continual condensation and evaporation.

4. National Oceanic and Atmospheric Administration. *JetStream - Precipitation.*
https://prod-01-alb-www-noaa.woc.noaa.gov/jetstream/atmosphere/precipitation
Collision-coalescence, ice processes and the transition from cloud particles to precipitation.

5. NASA Global Precipitation Measurement Mission. *How fast do raindrops fall?*
https://gpm.nasa.gov/resources/faq/how-fast-do-raindrops-fall
Upward wind and raindrop terminal speeds, including approximately 10 m/s for the largest drops in still air.

6. International Cloud Welfare Commission. *Commission Statement 2026/01 - The Clouds Were Participating Here First.*
ICWC/CS/2026/01
Foundational authority for Articles 4, 6, 8 and 10 of this Policy Brief.

Commission finding: The clouds are supported.
The support is simply atmospheric.