MINUTES OF THE
OUTGOING COUNCIL MEETING
(February 28, 2019)

Subject to the approval of the ION Council, the following minutes are submitted. The Council Meeting was called to order on January 28, 2019 at the Hyatt Regency Monterey, Monterey, CA at 6:00 p.m. Those present were:

### VOTING COUNCIL MEMBERS:

<table>
<thead>
<tr>
<th>Name</th>
<th>Outgoing Office Held</th>
<th>Incoming Office Held</th>
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<tbody>
<tr>
<td>John Raquet</td>
<td>President</td>
<td>Immediate Past President</td>
</tr>
<tr>
<td>Y. Jade Morton</td>
<td>Executive Vice President</td>
<td>President</td>
</tr>
<tr>
<td>Frank van Graas</td>
<td>Treasurer, Past President</td>
<td>Treasurer, Past President</td>
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<tr>
<td>Anthea Coster</td>
<td>Eastern VP</td>
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<tr>
<td>Gary McGraw</td>
<td>Western VP</td>
<td>Finance Chair</td>
</tr>
<tr>
<td>Chris Hegarty</td>
<td>Satellite Division Chair, Past Pres</td>
<td>Sat Div Chair, Past Pres</td>
</tr>
<tr>
<td>Sharon Donald</td>
<td>Proxy, Military Division Chair</td>
<td>Proxy, Military Div Chair</td>
</tr>
<tr>
<td>Dorota Grejner-Brzezinska</td>
<td>Immediate Past President</td>
<td>Past President</td>
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<tr>
<td>Francine Vannicola</td>
<td>Eastern Council M-at-L</td>
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<tr>
<td>Mathieu Joerger</td>
<td>Technical Representative</td>
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<td>Olivier Julien</td>
<td>Technical Representative</td>
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<tr>
<td>Andrey Soloviev</td>
<td>Technical Representative</td>
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<tr>
<td>Terry Moore</td>
<td>Technical Representative</td>
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<tr>
<td>John Betz</td>
<td>Fellow Selection Chair</td>
<td>Fellow Selection Chair</td>
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<td>Sherman Lo</td>
<td>Meetings Chair</td>
<td>Meetings Chair</td>
</tr>
<tr>
<td>Michael Meurer</td>
<td>Awards Chair</td>
<td>Awards Chair</td>
</tr>
<tr>
<td>John Nielson</td>
<td>Membership Chair</td>
<td></td>
</tr>
<tr>
<td>Kyle Wesson</td>
<td>DC Section Chair</td>
<td>DC Section Chair</td>
</tr>
<tr>
<td>Todd Walter</td>
<td>NO CA Section Chair, Past Pres</td>
<td>NO CA Sec Chair, Past Pres</td>
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<tr>
<td>Jim Doherty</td>
<td>Past President</td>
<td>Past President</td>
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<tr>
<td>Patricia Doherty</td>
<td>Past President</td>
<td>Past President</td>
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<tr>
<td>Larry Hothem</td>
<td>Past President</td>
<td>Past President</td>
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<td>John Lavrakas</td>
<td>Past President</td>
<td>Past President</td>
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<tr>
<td>Mikel Miller</td>
<td>Past President</td>
<td>Past President</td>
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<tr>
<td>Karen van Dyke</td>
<td>Past President</td>
<td>Past President</td>
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### VOTING MEMBERS AT INCOMING COUNCIL:

<table>
<thead>
<tr>
<th>Name</th>
<th>Incoming Position</th>
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<tbody>
<tr>
<td>Elliott Kaplan</td>
<td>Eastern VP</td>
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<tr>
<td>Steve Rounds</td>
<td>Western VP</td>
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<tr>
<td>Jacob Campbell</td>
<td>Eastern Council M-at-L</td>
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<tr>
<td>Robert Lutwak</td>
<td>Eastern Council M-at-L</td>
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<tr>
<td>André Hauschild</td>
<td>Technical Representative</td>
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<tr>
<td>Andrew Hansen</td>
<td>Technical Representative</td>
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<tr>
<td>Li-Ta Hsu</td>
<td>Technical Representative</td>
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<tr>
<td>Zak Kassas</td>
<td>Technical Representative</td>
</tr>
<tr>
<td>Jihye Lee</td>
<td>Technical Representative</td>
</tr>
<tr>
<td>Kevin Coggins</td>
<td>Membership Chair</td>
</tr>
<tr>
<td>Chuck Schue</td>
<td>Bylaws Chair</td>
</tr>
<tr>
<td>Alex Stratton</td>
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JOINED VIRTUALLY VIA WEBEX:
Sunil Bisnath Technical Representative
Elliott Kaplan Eastern Region VP
Jihye Park Technical Representative

NON-VOTING PARTICIPANTS:
<table>
<thead>
<tr>
<th>Name</th>
<th>Outgoing Position Held</th>
<th>Incoming Position Held</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa Beaty</td>
<td>Executive Director</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Jeff Martin</td>
<td></td>
<td>Ethics Chair</td>
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<tr>
<td>Jay Hanssen</td>
<td>PTTI General Chair 2019</td>
<td></td>
</tr>
<tr>
<td>Michael Coleman</td>
<td>PTTI Program Chair 2019</td>
<td>PTTI General Chair 2020</td>
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<tr>
<td>Okuary Osechas</td>
<td></td>
<td>ITM Program Chair 2020</td>
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It was determined that a quorum was achieved.

AGENDA

See Attached File: Agenda Council January 2019

Approve September 24, 2018 Council Meeting Minutes: J. Raquet

Motion: Council approves the September 24, 2018 Council Meeting Minutes as circulated. Motion made by John Raquet, seconded by Pat Doherty and passed by the Council.

President’s Report: J. Raquet

See Attached File: Presidents Report 1-28-19

MOTION: Council ratifies the ION’s updated privacy policy (updated May 2018) in response to EU’s General Data Protection Regulations (GDPR). Council agrees to the following policy changes in the implementation of the ION’s privacy policy:

- Attendee registration lists will no longer be made available to attendees.
- Attendee photographs will not be posted on sharing sites for attendee access.
  - Photographs where the individuals can be identified require the explicit consent of the individuals to post or distribute.
  - ION has the right to use the photograph without express consent when it is in the legitimate interest of the organization to do so (i.e.: ION Newsletter, in future conference publications, especially crowd shots, etc.).
  - ION will continue to notify conference attendees of ION’s conference photographic policy at the time of registration and in conference programs etc.
  - ION will provide individuals with copies of specific photographs of themselves as requested.

Motion made by John Raquet, seconded by Mikel Miller and passed by Council.

Karen Van Dyke asked for an update on the action item from the September 2018 Council meeting that ION include a disclaimer in the ION Newsletter on opinion pieces that identify these
as not representing the position of the ION. Lisa Beaty reported she had reviewed the editorial content of the *ION Newsletter* with the editor and John Raquet, president, and it was decided to follow general publication standard and include an all-inclusive disclaimer for the entire newsletter instead of isolating specific articles in each issue. It was reported that the disclaimer first appeared in the fall 2018 issue, the first issue after the September Council meeting, and could be found in the newsletter section that provides editorial contact information for the publication.

**Executive VP Report: J. Morton**

Dr. Y. Jade Morton, Executive VP, reported that she had been working with Boris Pervan to provide content for a special BeiDou issue for *NAVIGATION*. It was reported this was currently scheduled for spring 2019, and would include seven original peer reviewed manuscripts. Special editors for the spring 2019 issue included Y. Jade Morton, John Betz, Minquan Lu and Yanxi Yang.

Morton reported that she’d hosted an ION delegation at the Chinese Satellite Navigation Conference (CSNC), in May 2018, in Harbin, China. She reported the CSNC 2019 would be the meeting’s 10th anniversary and there were plans to attend again this year with copies *NAVIGATION’s* special BeiDou issue.

**Eastern Region VP Report: A. Coster**

Anthea Coster, Eastern Region VP, reported the Ohio Section was active with monthly meetings of 30-40 persons. DC Section was reported to host quarterly meetings and the Boston Section was active with quarterly meetings and had hosted ION president John Raquet the end of 2018. Coster suggested the sections explore the idea of hosting virtual meetings. Karen Van Dyke suggested meetings hosted outside of the downtown area were often preferable, or at least with metro access for the DC area.

**Western Region VP Report: G. McGraw (delayed arrival due to air traffic)**

**Annual Awards Committee Report: M. Meurer**

See Attached File: *Annual Awards Committee Report 2018*

Dr. Michael Meurer, 2018 Awards Chair, reported that the 2018 Awards Committee was comprised of: Dr. Michael Meurer (Chair), Dr. Chris Hegarty, Dr. Richard Langley, Dr. Christophe Macabiau, Mr. Doug Taggart, Dr. Gary McGraw and Dr. Y. Jade Morton.

The committee selected the following as their recommendations of the proposed recipients of The Institute of Navigation’s Annual Awards.

- **Early Achievement:** Dr. Seebany Datta-Barua
- **Superior Achievement:** Major Clifford Lucas
- **P.V.H. Weems:** Dr. Chris Bartone
- **Tycho Brahe:** Dr. Marek Ziebart
- **Norman P. Hays:** Mr. Karl Shallberg
- **Thomas L. Thurlow:** Mr. Marco Falcone

The ION Executive Committee approved the Annual Award Selection Committee’s recommendations, by e-mail vote (November 2018). The Annual Award Selection Committee respectfully asked the Council to ratify the 2018 ION Annual Award selections with the following motion:

Motion: Council ratifies the recommendation of the Annual Awards Committee of the proposed recipients of the 2018 Annual Awards, as outlined above. Motion made by Michael Meurer, seconded by Pat Doherty, and passed by the Council.

Proposal ION’s Early Achievement Award: T. Walter

Dr. Todd Walter formally requested that Council rename the ION’s Early Achievement Award in memory of Dr. Per Enge, past ION president, retroactive to the 2018 award being presented January 31, 2019 using the following description:

Early Achievement Award—given in memory of Dr. Per Enge, his legacy of joy in his work and his gift to inspire others with this joy through education, advising and mentorship. This award recognizes an individual early in his or her career who has made an outstanding achievement in the art and science of positioning, navigation or timing.

Note that in addition to the dedication, contribution was expanded from “navigation” to “positioning, navigation and/or timing” and Dr. Walter proposed that the Awards Policy be updated to reflect this change.

Motion: Description and criteria for ION’s Early Achievement Award be renamed updated in the Awards Policy to:

Per Enge Early Achievement Award—given in memory of Prof. Per Enge, a brilliant engineer and teacher, who used his cheerfulness and enthusiasm to inspire others through education, advising and mentorship. This award recognizes an individual early in his or her career who has made an outstanding achievement in the art and science of positioning, navigation and timing. Motion made by Todd Walter, seconded by Dorota Brzezinska, and passed by the Council.

Motion: expand the award description/criteria in the Award Policy document for the Early Achievement Award from “navigation” only to “positioning, navigation and/or timing” in all applicable paragraphs. Motion made by Todd Walter, seconded by Pat Doherty, and passed by the Council.

Motion: Council authorizes the change to the Early Achievement Award above be made effective with the presentation of the 2018 award being awarded January 31, 2019. Motion made by Todd Walter, seconded by Pat Doherty, and passed by the Council.

Fellow Selection Committee Report: J. Betz

See Attached File: Fellow Committee Report 2019

John Betz, Chair of the Fellow Selection Committee, reported that the 2019 Fellows Selection Committee consisted of the following ION Fellows: Dr. John Betz (Chair), Dr. Anthea Coster, Dr. Pratap Misra, Tom Stansell, Dr. Peter Teunissen and Karen Van Dyke. Rounding out the committee was Doug Taggart who it was reported was the ION president’s nominee that was added to the committee per the policy*.

* In September 2018, the ION Council updated/modified the ION Fellow Selection Procedure Policy to provide better guidance to the Fellow Selection Committee in prioritizing selection criteria. As part of the revised Fellow Selection Procedures approved in September: “The President and Chair shall select one additional member to serve on the Committee who does not need to be an ION Fellow, but whose background is distinct from the existing Fellows population” (see Section 5.2 of the Fellow Selection Procedures Policy). The goal of this is to ensure broad representation on the committee.

In October 2018 John Betz, chair of the 2019 Fellow Selection Committee, and John Raquet, ION president, invited Doug Taggart to serve as the additional member of this year’s ION Fellow Selection Committee. The Executive Committee approved Taggart by email vote in October 2018.

It was reported that the committee members were thorough and collaborative in performing their deliberations and the committee had endorsed:

<table>
<thead>
<tr>
<th>Fellow</th>
<th>Citation</th>
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<tbody>
<tr>
<td>Dr. Jon Anderson</td>
<td>For leadership in developing the GPS M-code signal, in the Modernized GPS User Equipment (MGUE) program and in the AFRL Navigation Technology Satellite 3 (NTS-3) program.</td>
</tr>
<tr>
<td>Dr. Chris G. Bartone</td>
<td>For sustained contributions in research, applications and teaching in the areas of electronic navigation, GNSS and antenna technologies.</td>
</tr>
<tr>
<td>Dr. Oliver Montenbruck</td>
<td>For pioneering contributions to GPS for navigation of space vehicles, the advancement of multi-GNSS understanding and tracking networks to support scientific and societal benefit.</td>
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</table>

It was reported that the ION Executive Committee approved the Fellow Selection Committee’s selections by e-mail vote in November 2018. The Fellow Selection Committee respectfully asked the Council to ratify the 2019 Fellow selections with the following motion:
Motion: Council ratifies the approved 2019 Fellows as outlined above. Motion made by Anthea Coster seconded by Karen Van Dyke, and passed by the Council.

Nominating Committee Report/Election Results: D. Brzezinska

See Attached File: Nominating Committee Report 2019

Dr. Dorota Brzezinska, Nominating Chair, reported that the 2019 Nominating Committee consisted of Dr. Dorota Grejner-Brzezinska (Chair) with Chris Hegarty, Larry Hothem and Karen Van Dyke from the Eastern Region; and Penny Axelrad, John Clark and John Lavrakas from the Western Region.

The 2019-2021 nominees were:

President: Dr. Y. Jade Morton, University of Colorado at Boulder

Executive Vice President:
   Dr. Frank van Diggelen, Google
   Dr. Gary McGraw, Collins Aerospace

Treasurer:
   Dr. Frank van Graas, Ohio University

Eastern Region Vice President:
   Mr. Elliott Kaplan, The MITRE Corporation
   Dr. Keith McDonald, The MITRE Corporation

Western Region Vice President:
   Mr. Steve Rounds, John Deere
   Mrs. Sandy Kennedy, NovAtel, Canada

Eastern Council Member-at-Large:
   Mr. Kevin Coggins, Booz Allen Hamilton
   Dr. Robert Lutwak, Air Force Research Laboratory
   Dr. R. Dr. Jacob Campbell, Air Force Research Laboratory
   Dr. Kyle Wesson, Zeta Associates

Western Council Member-at-Large:
   Dr. Mathieu Joerger, University of Arizona
   Dr. Zak Kassas, University of California, Irvine
   Jeff Martin, Spirent Federal Systems
   Dr. Alex Stratton, Collins Aerospace

Technical Representatives:
   Mr. Ken Alexander, Federal Aviation Administration
   Dr. José-Ángel Ávila-Rodríguez, European Space Agency, The Netherlands
   Dr. Sunil Bisnath, York University, Canada
It was reported that the 2019-2021 elected officers are:

President: Dr. Y. Jade Morton, *University of Colorado at Boulder*
Executive Vice President: Dr. Frank van Diggelen, *Google*
Treasurer: Dr. Frank van Graas, *Ohio University*

Eastern Region Vice President: Mr. Elliott Kaplan, *The MITRE Corporation*
Western Region Vice President: Mr. Steve Rounds, *John Deere*

Eastern Council Member-at-Large: Dr. Jacob Campbell, *Air Force Research Laboratory*
Dr. Robert Lutwak, *Air Force Research Laboratory*

Western Council Member-at-Large: Dr. Zak Kassas, *University of California, Irvine*
Dr. Alex Stratton, *Collins Aerospace*

Technical Representatives:
Dr. Sunil Bisnath, *York University, Canada*
Dr. Andrew Hansen, *Department of Transportation (DoT)*
Dr. André Hauschild, *German Aerospace Center (DLR), Germany*
Dr. Li-Ta Hsu, *Hong Kong Polytechnic University, China*
Ms. Deborah Lawrence, *Federal Aviation Administration*
Dr. Jiyun Lee, *Korea Advanced Institute of Science and Technology, South Korea*
Dr. Terry Moore, *The University of Nottingham, UK*
Dr. Jihye Park, *Oregon State University*

*MOTION:* Council ratifies the election results. Additionally, for purposes of bank signature cards and banking corporate resolutions, the Council authorizes Lisa Beaty to act as “Secretary” and Council continues to authorize Frank van Graas and Lisa Beaty as authorized signatories on all ION bank and investment accounts with the right to transact business on the ION’s behalf. Motion made by Dorota Brzezinska, seconded by Chris Hegarty, and passed by the Council.
Meeting Chair Report: S. Lo

See Attached File: Meetings Chair Jan 2019

Sherman Lo, Meetings Chair, discussed guidelines for peer reviewed conferences, required abstract lengths for ION submissions, awards for Pacific PNT and other conferences, session chair recognition for peer review and guidelines for ION program chairs in reassigning session chairs when sessions are expanded to two parts (part 1 and part 2).

There was discussion about presenting best paper awards at ITM (peer reviewed) and PTTI (non-peer reviewed) and it was noted this had been discussed before. There was concern expressed that the value of a “best paper award” designation given at other conferences not be diluted by awarding less competitive awards at ITM.

Action: ION Meetings Chair to form an ad hoc committee of the past three ITM program chairs (Olivier Julien, Jinyun Lee and Steve Rounds) to discuss the pros and cons of best paper awards and proposed mechanisms and forms of recognition if appropriate.

Lo suggested ION look again at the abstract submission requirements for conferences where full paper reviews are being used for paper selections and shorten the suggested abstract length.

Action: ION Meetings Chair to look at the instructions for abstract submission for meetings (other than GNSS) and see if instructions provided are still applicable in current environment.

Treasurer’s Report: F. van Graas

Frank van Graas, Treasurer, reviewed the ION’s FY 2017-18 audit report, status of reserve fund, financial actions taken by the ION Executive Committee and the ION’s 2019-20 budget. Plans for the ION Strategic Planning Committee to meet later this week to discuss possible applications of ION reserve fund earning and goals for the same. It was reported that additional recommendations are pending the outcome of these proceedings.

See Attached Files:
- Treasurers Report January 2019
- ION 3.31.18 Audited Financial Stmts
- ION 3.31.18 Governance Communication
- ION 3.31.18 Internal Control Letter
- Budget 2019-20
- Conflict of Interest Disclosure Form 2019

MOTION: The Council ratifies the ION Executive Committee’s action and approves the FY 2017-18 Audited Financial Statements, Governance Communication and Management Letters as circulated. Motion made by Frank van Graas, seconded by John Raquet, and passed by the Council.

ACTION: Lisa Beaty is currently seeking bids from DC area accounting firms specializing in
non-profits and will report to the Executive Committee with a recommendation for FY 2018-19 audit and tax filing services.

Postscript:

Lisa Beaty followed up in by email in February 2019 with the Executive Committee. The Executive Committee was advised that CliftonLarsonAllen (CLA) had performed the ION’s audit for the past number of years, and Lisa had negotiated an agreement with CLA to freeze their rate of service for the next five years inclusive of incorporating all new standards. Frank van Graas, ION Treasurer, was briefed on the recommendation and the following motion was sent to the ION Executive Committee for email vote February 11, 2019:

MOTION: It is proposed the ION engage CliftonLarsonAllen (CLA) to perform the ION’s FY2018-19 audit and prepare accompanying tax filings. (Motion approved by the Executive Committee by email vote February 2019.)

The FY 2019-20 National Budget was reviewed and the following items were highlighted:

- No increase in membership dues.
- Decrease in membership dues for international students to the rate of domestic students (all student members pay a flat rate of $40 per year, regardless of their country of residence).
- Meeting registration rates to remain unchanged. The Military Division will again subsidize JNC 2019 registration at a rate of $100 per attendee from Military Division funds (as was done in 2018) to lessen the impact to attendee registration fees.
- Electronic proceedings will be included in all student registration rates (implemented ION GNSS+ 2018).
- Budget for new and unfilled National Office Staff positions were reviewed.

MOTION: Council approves the 2019-’20 Budget as submitted. Motion made by Frank van Graas, seconded by Gary McGraw, and passed by the Council.

Appointment ITM 2020 and PTTI 2020 Program Chairs: J. Raquet/J. Hanssen

It was reported the following would serve on the January 2020 committee:

**ITM General Chair:** Dr. Olivier Julien, u-blox, Switzerland  
**ITM Program Chair:** Dr. Okuary Osechas, German Aerospace Center, Germany  
**PTTI General Chair:** Dr. Michael Coleman, NRL  
**PTTI Program Chair:** Dr. Jennifer Taylor, USNO

**MINUTES OF THE**  
**INCOMING COUNCIL MEETING**  
**(January 28, 2019)**
Appointment Standing and Ad Hoc Committee Chairs: J. Morton

Y. Jade Morton, incoming president, congratulated all incoming members of Council and presented the following committee chair names to Council for approval:

Standing Committee Chairs:

- Nominating: John Raquet
- Finance: Gary McGraw
- Membership: Kevin Coggins
- Fellow Selection: John Betz
- Technical Committees: Frank van Diggelen
- Publications: Boris Pervan
- Meetings: Sherman Lo
- Awards Selection: Michael Meurer
- Bylaws: Chuck Schue

Ad Hoc Committee Chairs:

- Editor: Boris Pervan
- New Initiatives: John Raquet
- Strategic Planning: Frank van Diggelen
- Historian: Marvin May
- Government Fellows: Clark Cohen
- Ethics: Jeff Martin

Motion: Council approves all committee chairs as listed above. Motion made by Y. Jade Morton, seconded by Pat Doherty and passed by the Council.

Dr. Morton, incoming President, reviewed her goals for the next two years:

1. Foster international collaboration between ION and the international GNSS systems.
2. Collaborate with the Publications Committee to increase NAVIGATION’s impact factor and review NAVIGATION as the technical publication being provided to the ION membership as our primary membership benefit.
3. Support the efforts of the Strategic Planning Committee as the Committee looks at the long-term use and management of the ION’s resources in a strategic manner that will ensure the future longevity and vitality of the organization.
4. Foster the next generation of ION membership.

Approval 2020 Fellows Committee Chair & Committee: J. Morton

Motion: It is proposed the following serve on the 2020 Fellow Selection Committee: Dr. John Betz (Chair), Dr. Anthea Coster, Dr. Pratap Misra, Tom Stansell, Dr. Peter Teunissen and Karen Van Dyke. As per the Fellow Selection Policy, ION president elect Morton nominates Doug Taggart to serve as the appointed member of the Fellow Selection Committee.
Committee. Motion made by Jade Morton, seconded by Dorota Brzezinska, and passed by the Council.

Approval 2019 Annual Awards Chair & Committee: J. Morton

Motion: It is proposed the following serve on the 2019 Annual Awards Selection Committee: Michael Meurer (Chair), Didier Flament, Allison Kealy, Richard Langley, Gary McGraw, John Raquet, Logan Scott and Todd Walter. Motion made by Michael Meurer, seconded by Frank van Graas, and passed by the Council.

Postscript:

Motion: The ION’s Annual Awards Selection Committee take over the selection of the ION’s PTTI Award for 2019 (awarded in January 2020); and the 2019 Annual Award Selection Committee add Francine Vannicola as a member of the committee. Motion endorsed by the ION Annual Awards Selection Chair and approved by the ION Executive Committee by email vote February 11, 2019.

The meeting adjourned at 8:00 p.m.

Additional Documents Included with these Minutes:

Calendar 2019